

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)	CASE NO.
DEPLOY ADVANCED METERING)	2020-00349
INFRASTRUCTURE, APPROVAL OF CERTAIN)	
REGULATORY AND ACCOUNTING)	
TREATMENTS, AND ESTABLISHMENT OF A)	
ONE-YEAR SURCREDIT)	

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

ORDER

This matter arises from Louisville Gas and Electric Company's (LG&E) and Kentucky Utilities Company's (KU) (jointly, LG&E/KU) respective requests for a general rate adjustment that included, among other things, revised qualifying facilities (QF) tariffs, Tariff Small Qualifying Facilities (SQF) and Large Qualifying Facilities (LQF) and a new net metering tariff, Tariff N.M.S. 2 (NMS 2) and approval of the current net metering tariff renamed as Tariff N.M.S. 1 (NMS 1). On June 30, 2021, the Commission entered an Order that rendered decisions on the issues raised in this proceeding, but deferred a decision on SQF, LQF, NMS 1, NMS 2, and an issue regarding joint ownership of a

customer account to afford the parties the opportunity to develop a thorough, robust record.

Regarding SQF and LQF tariffs, per the June 30, 2021 Order, the Commission found that additional information is needed to determine fair, just and reasonable avoided energy and avoided generation capacity rates, and the length of a QF contract term.

Regarding NMS 2, the June 30, 2021 Order directed the parties to file additional evidence for the net metering export compensation rate using the components established in Kentucky Power Company's (Kentucky Power) net metering proceeding, Case No. 2020-00174:¹ avoided energy, ancillary services, generation capacity, transmission capacity, distribution capacity, carbon, and environmental compliance costs, and job benefits as they relate to calculating the NMS 2 export rate. The Commission also found that additional information regarding advanced distribution management solutions (ADMS) and Distributed Energy Resource Management Systems (DERMS) was necessary because of LG&E/KU's plans to spend significant amounts on ADMS and DERMS to address potential issues with a dynamic distribution system, such as voltage regulation, even though the penetration of such resources on LG&E/KU's system is miniscule and there are other, more affordable alternatives to ADMS and DERMS.

The following parties requested and were granted full intervention in Case No. 2020-00349: the Attorney General of the Commonwealth of Kentucky, by and through the Office of Rate Intervention (Attorney General); Kentucky Industrial Utility Customers, Inc.

¹ Case No. 2020-00174, *Electronic Application of Kentucky Power Company for (1) A General Adjustment of Its Rates for Electric Service; (2) Approval Of Tariffs and Riders; (3) Approval of Accounting Practices to Establish Regulatory Assets and Liabilities; (4) Approval of a Certificate of Public Convenience and Necessity; and (5) All Other Required Approvals and Relief* (Ky. PSC May 14, 2021) (May 14, 2021 Order). Rehearing denied June 23, 2021.

(KIUC); Kentucky Solar Industries Association, Inc. (KYSEIA); Mountain Association, Kentuckians for the Commonwealth, and Kentucky Solar Energy Society (collectively, Joint Intervenors); Sierra Club; Kroger Company (Kroger); Walmart Inc. (Walmart); Lexington-Fayette Urban County Government (LFUCG); and United States Department of Defense and all other Federal Executive Agencies (DOD/FEA). The Attorney General and KIUC (collectively, Attorney General/KIUC) jointly sponsor certain discovery requests and witness testimony in Case No. 2020-00349 and Case No. 2020-00350.

The following parties requested and were granted full intervention in Case No. 2020-00350: the Attorney General; KIUC; KYSEIA; Joint Intervenors; Sierra Club; Kroger; Walmart Inc.; Metro Louisville/Jefferson County Government (Louisville Metro); and DOD/FEA.²

Pursuant to a procedural schedule established on June 30, 2021, LG&E/KU, Attorney General/KIUC, KYSEIA, and Joint Intervenors responded to multiple rounds of discovery, and submitted supplemental and rebuttal testimony regarding the SQF, LQF, and NMS tariffs.³ An evidentiary hearing was held on August 17 and 18, 2021. LG&E/KU and Joint Intervenors filed their respective responses to post-hearing requests for information. On September 7, 2021, LG&E/KU, KYSEIA, Joint Intervenors, Attorney General/KIUC, and Sierra Club filed their respective post-hearing briefs. The matter now stands submitted to the Commission for a decision.

² Kroger, Walmart, LFUCG, Louisville Metro, and DOD/FEA were active participants in this case prior to the June 30, 2021 Order that addressed all issues for which these parties sponsored data requests, witness testimony, and briefing. These parties did not sponsor data requests or witness testimony after the June 30, 2021 Order, and were excused from attending the August 17–18, 2021 formal hearing.

³ LG&E/KU, Attorney General/KIUC, KYSEIA, and Joint Intervenors sponsored discovery responses, filed testimony, participated in the formal hearing, and filed briefs.

LEGAL STANDARD

LG&E/KU filed their proposed revisions to SQF and LQF pursuant to 807 KAR 5:054 and their proposed NMS II pursuant to KRS 278.180; KRS 278.190; and 807 KAR 5:011. The Commission's standard of review of a utility's request for a tariff is well established. In accordance with statutory and case law, LG&E/KU are allowed to charge their customers "only 'fair, just and reasonable rates.'"⁴ Further, LG&E/KU bear the burden of proof to show that the proposed tariff is just and reasonable, under KRS 278.190(3).

In accordance with 807 KAR 5:054, Section 7(2) and (4), the compensation rate for QF's should be just and reasonable to the electric customer of the utility, in the public interest, and nondiscriminatory. In accordance with 807 KAR 5:054, Sections (1) and 7(2) and 7(4), the QF compensation rate should be based on the avoided costs, or the incremental costs, to a utility for electric energy or capacity, or both, that the utility would generate themselves or purchase from another source if not for the purchase from the qualifying facility.

The review of NMS 1 and 2, in particular the export rate for energy exported onto the electric grid, is governed by KRS 278.465 and KRS 278.466. In accordance with KRS 278.465(1)-(2), NMS I and II apply to eligible customer-generators who own and operate an electric generating facility with a rated capacity of 45 kW or less that is located on the customer's premises for the primary purpose of supplying all or part of the customer's own electricity requirements. Pursuant to KRS 278.466(3), customers taking service under NMS 2 will be compensated for electricity fed into the grid over a billing

⁴ KRS 278.030; and *Pub. Serv. Comm'n v. Com. ex rel. Conway*, 324 S.W.3d 373, 377 (Ky. 2010).

period at a rate set by the Commission using ratemaking processes authorized by KRS Chapter 278 in a proceeding initiated by a retail electric supplier. KRS 278.466(4), provides that the compensation:

[S]hall be in the form of a dollar-denominated bill credit. If an eligible customer-generator's bill credit exceeds the amount to be billed to the customer in a billing period, the amount of the credit in excess of the customer's bill shall carry forward to the customer's next bill.

KRS 278.466(5) provides that net metering rates should be developed as follows:

Using the ratemaking process provided by this chapter, each retail electric supplier shall be entitled to implement rates to recover from its eligible customer-generators all costs necessary to serve its eligible customer-generators, including but not limited to fixed and demand-based costs, without regard for the rate structure for customers who are not eligible customer-generators.

According to KRS 278.466(2), the utility is financially responsible for providing net metering customers with a standard kWh meter capable of registering a bidirectional flow of electricity. Additional meters, distribution upgrades to monitor the bidirectional electricity flow, and any upgrade of the interconnection between the utility and net metering customer-generator are made at the expense of the customer-generator, pursuant to KRS 278.466(2) and (9).

KRS 278.466(6) provides that customers taking service under NMS 1 will continue to be compensated on a one-to-one kWh denominated energy credit for electricity fed into the grid for 25 years:

For an eligible electric generating facility in service prior to the effective date of the initial net metering order by the commission in accordance with subsection (3) of this section, the net metering tariff provisions in place when the eligible customer-generator began taking net metering service, including the one-to-one (1:1) kilowatt-hour denominated

energy credit provided for electricity fed into the grid, shall remain in effect at those premises for a twenty-five (25) year period, regardless of whether the premises are sold or conveyed during that twenty-five (25) year period. For any eligible customer-generator to whom this subsection applies, each net metering contract or tariff under which the customer takes service shall be identical, with respect to energy rates, rate structure, and monthly charges, to the contract or tariff to which the same customer would be assigned if the customer were not an eligible customer-generator.

ARGUMENTS

In response to the June 30, 2021 Order, LG&E/KU, KYSEIA, and Joint Intervenors filed supplemental information regarding QF avoided energy and avoided generation capacity rates, and the term of QF contracts. These parties also filed supplemental information regarding net metering export compensation rates as directed in the June 30, 2021 Order.

LG&E/KU

1. SQF and LQF

In supplemental testimony filed after the June 30, 2021 Order, LG&E/KU proposed a new framework for compensating SQF and LQF customers for the energy and capacity purchased by LG&E/KU, including allowing those customers to lock in to avoided energy and capacity compensation via a 20-year contract or, to avoid long-term commitments, a 2-year contract based on LG&E/KU's short-term avoided cost, which would be updated every two years.⁵ LG&E/KU claimed that the new proposed framework was designed to pay the appropriate avoided costs to customers and to create a reasonable, principle-based incentive to develop renewable generating assets in LG&E/KU's service area.

⁵ Supplemental Testimony of David S. Sinclair (filed July 13, 2021) (Sinclair July 13, 2021 Testimony) at 1.

For avoided energy costs, LG&E/KU developed compensation estimates for four generation technologies using LG&E/KU's updated 2021 Business Plan in conjunction with LG&E/KU's production cost model, PROSYM.⁶ The four generation technologies that were considered were: single axis tracking solar, fixed tilt solar, wind, and "other technologies" (e.g. steam host, hydro, biomass).⁷ In short, the methodology takes the hourly output from LG&E/KU's PROSYM generation model for 2022 through 2045 (24 years) and computes the annual avoided energy cost by backing down generation using an hourly generation profile for each of the generation technologies assuming an 80 MW nameplate rated unit.⁸ An 80 MW unit was chosen because it is the maximum allowed size of a small power production facility in 807 KAR 5:054, and is close to the combined one percent cap on net metering for LG&E/KU and KU of 60 MW.⁹ LG&E/KU contend that the avoided energy cost they developed includes costs associated with SO₂ and NO_x emission allowances and emission system reagents, which is the reason for not including additional NMS 2 avoided cost compensation for carbon and environmental compliance.¹⁰ The avoided energy costs were then levelized to produce avoided energy prices for 2- and 20-year QF contracts per MWh.¹¹

⁶ *Id.* at 3–4.

⁷ *Id.* at 4.

⁸ *Id.* at 4.

⁹ *Id.* at 5.

¹⁰ *Id.* at 5.

¹¹ *Id.* at 7.

Technology	2-Year PPA (2021-2023)	20-Year Level Price for Contracts Beginning:				
		2022	2023	2024	2025	2026
Solar: Single-Axis Tracking	22.94	23.85	23.92	24.03	24.14	24.26
Solar: Fixed Tilt	23.19	24.07	24.14	24.26	24.36	24.48
Wind	22.51	23.71	23.83	23.97	24.11	24.24
Other Technologies	22.04	22.98	23.07	23.18	23.29	23.39

LG&E/KU stated that the only reasonable approach to setting QF capacity rates would be to compare like facilities and their capacity values and costs.¹² LG&E/KU recommended using the lowest cost of two methods for calculating avoided capacity costs: (1) current market price, or (2) the levelized cost of a simple cycle combustion turbine (CT).¹³ LG&E/KU's current market price methodology utilized recent LG&E/KU purchase power agreement (PPA) prices and the LevelTen PPA Price Index to determine the difference in the typical market price and the avoided energy cost as described above.¹⁴ The difference between the two is the avoided capacity cost.¹⁵ Using the CT proxy, LG&E/KU found the annual avoided capacity costs of the four generation technologies by multiplying the average annual availability factors of QFs by the carrying charge of a simple cycle CT.¹⁶ The annual avoided capacity costs were then divided by the specific generation technology's expected generation hours in a year (using the

¹² Supplemental Testimony of Robert M. Conroy (filed July 13, 2021) (Conroy July 13, 2021 Testimony) at 3.

¹³ Sinclair July 13, 2021 Testimony at 10.

¹⁴ *Id.* at 8–9. LevelTen Energy, among other thing, operates a marketplace that connects buyers to renewable energy sources to obtain renewable energy PPAs.

¹⁵ *Id.* at 8.

¹⁶ *Id.*, Exhibit DSS–2 at 8–9.

technology’s capacity factor) to produce an avoided cost per MWh then levelized.¹⁷ The table below represents LG&E/KU’s avoided capacity cost using LG&E/KU PPA data and the current market prices for solar, LevelTen PPA data and the current market price for wind, and the CT proxy for other technologies.¹⁸

Avoided Capacity Price for 2028 Capacity Need						
Technology	2-Year PPA (2021-2023)	20-Year Level Price for Contracts Beginning:				
		2022	2023	2024	2025	2026
Solar: Single-Axis Tracking	0.00	1.82	2.05	2.27	2.50	2.73
Solar: Fixed Tilt	0.00	1.70	1.91	2.12	2.33	2.53
Wind	0.00	2.98	3.32	3.68	4.05	4.43
Other Technologies	0.00	8.27	9.27	10.33	11.48	12.71
Avoided Capacity Price for 2034 Capacity Need						
Technology	2-Year PPA (2021-2023)	20-Year Level Price for Contracts Beginning:				
		2022	2023	2024	2025	2026
Solar: Single-Axis Tracking	0.00	0.67	0.82	0.96	1.10	1.23
Solar: Fixed Tilt	0.00	0.60	0.73	0.86	0.99	1.10
Wind	0.00	1.18	1.40	1.63	1.86	2.09
Other Technologies	0.00	4.05	4.75	5.51	6.34	7.22

19

According to LG&E/KU, under two scenarios, they have no need for summer capacity until 2028 at the earliest and 2034 at the latest.²⁰ For that reason, LG&E/KU requested to cap the amount of QF capacity eligible for a capacity payment at 1,000 MW.²¹ In the event that LG&E/KU’s future capacity needs are met (or not needed),

¹⁷ *Id.*, Exhibit DSS–2 at 10.

¹⁸ *Id.* at 10.

¹⁹ *Id.*, Exhibit DSS–2 at 12.

²⁰ *Id.*, Exhibit DSS–2 at 1, Table 1.

²¹ *Id.* at 14.

LG&E/KU argued that the avoided generation capacity compensation should be zero until a capacity need arises again. LG&E/KU explained that the QF can still receive an avoided energy compensation under this proposal.²² LG&E/KU asserted that, under their proposal, they would not procure unneeded capacity at the expense of customers.²³

Lastly, LG&E/KU proposed to modify their LQF, SQF, Green Tariff, and Solar Share Program Riders to reflect their supplemental analysis. LG&E/KU would remove any references to Rates A and B, and related references to rate selection and time-differentiated rates,²⁴ and would include language reflecting that: (1) LG&E/KU will file new 24-year avoided energy and capacity prices every two years; (2) LG&E/KU will file their 24-year need for capacity every two years; (3) any customer seeking to sell energy and capacity under the SQF or LQF Riders during the two-year window between filings can execute either a 2 or 20 year PPA; and (4) if the total capacity volume of QF PPAs exceeds LG&E/KU's capacity need, then the avoided capacity price shall be set to \$0.²⁵

2. NMS 2

LG&E/KU proposed that NMS 2 apply to new, non-grandfathered, eligible customer-generators on or after the date in which the rates determined by this proceeding take effect.²⁶ Eligible customers-generators who have executed LG&E/KU's application for interconnection and net metering and whose eligible electric generating facilities are

²² *Id.* at 15.

²³ *Id.* at 14.

²⁴ Conroy July 13, 2021 Testimony at 11.

²⁵ Sinclair July 13, 2021 Testimony at 16.

²⁶ Direct Testimony of William Steven Seelye (filed Nov. 15, 2020) (Seelye November 15, 2020 Testimony) at 41.

in service prior to the date in which the new rates take effect, would retain their current rates and be grandfathered in under NMS 1 for 25 years.²⁷ In addition, LG&E/KU stated that the customer-generators under NMS 1 would continue to receive the kWh credit for electricity produced onto LG&E/KU's grid regardless of whether premises are sold or conveyed during the 25 year time period.²⁸ Increases in the capacity of eligible electric generating facilities could result in the loss of legacy status for NMS 1 customer-generators, with an exception for the repair and replacement of existing components with other like-components that do not increase the system's capacity.²⁹

In their initial application, LG&E/KU proposed that NMS 2 eligible customer-generators be compensated for any excess generation supplied to the grid at the avoided cost rate set forth in LG&E/KU's SQF Tariff.³⁰ In supplemental testimony and briefing filed after the June 30, 2021 Order, LG&E/KU proposed new NMS 2 rates that addressed the avoided cost components established in Case No. 2020-00174. In general, LG&E/KU agreed that the Commission properly identified the categories of avoided costs that should be considered in developing export compensation rates for NMS 2, but maintained that the cost under most categories could be determined to have a value of zero.³¹ LG&E/KU's proposed NMS 2 rate components are as follows:

²⁷ *Id.* at 41.

²⁸ Direct Testimony of Robert M. Conroy (filed Nov. 25, 2020) (Conroy November 25, 2020 Testimony) at 23; LG&E/KU's Responses to KYSEIA's First Request for Information (KYSEIA's First Request for Information), Item 4c; Seelye November 25, 2020 Testimony at 41.

²⁹ LG&E/KU's Response to KYSEA's First Request for Information, Item 5b.

³⁰ Seelye November 25, 2020 Testimony at 43.

³¹ Supplemental Testimony of William Steven Seelye (filed July 13, 2021) (Seelye July 13, 2021 Testimony) at 7.

Avoided Energy: LG&E/KU's avoided energy cost estimate included the cost of fuel, emission control reagents, emission allowance costs, and an opportunity cost for lost CCR revenues.³² The estimate was developed using LG&E/KU's updated 2021 Business Plan in conjunction with LG&E/KU's production cost model, PROSYM.³³ LG&E/KU explained that nearly all eligible customer-generators taking service under NMS 2 will most likely have Fixed-Tilt Solar installations, so the recommendation for the avoided energy cost component for NMS 2 is \$0.02319/kWh,³⁴ which is based on the avoided energy cost for a 2-year fixed-tilt solar PPA beginning in 2021-2023.³⁵ If the Commission were to require line losses in this avoided cost component, LG&E/KU estimated an additional avoided cost of \$0.00053/kWh.³⁶ However, LG&E/KU maintained that actual avoided line losses would vary from customer-generator to eligible customer-generator, depending on a multitude of factors.³⁷

Avoided Ancillary Service: LG&E/KU argued that there are no avoided ancillary services costs provided by eligible customer-generators.³⁸ In particular, LG&E/KU contended that the cost associated with ancillary services are either embedded costs, included in other avoided costs, or will remain unchanged in the presence of net-metering

³² Sinclair July 13, 2021 Testimony, Exhibit DSS-1 at 1.

³³ *Id.* at 3-4.

³⁴ Seelye July 13, 2021 Testimony at 9.

³⁵ Sinclair July 13, 2021 Testimony Exhibit DSS-1 at 3, Table 3.

³⁶ Seelye July 13, 2021 Testimony at 12.

³⁷ *Id.* at 9.

³⁸ *Id.* at 14.

customers. If the Commission were to include ancillary services in avoided cost component, LG&E/KU estimated an additional avoided cost of \$0.00006/kWh.³⁹

Avoided Generation Capacity: LG&E/KU argued that energy supplied from eligible customer-generators is “as-available”, and thus cannot be relied upon to avoid generation capacity.⁴⁰ In addition, eligible customer-generators cannot make any legally enforceable commitment to provide capacity, and thus the avoided capacity component is zero.⁴¹ If the Commission were to require a generation capacity avoided cost component, LG&E/KU maintained that the compensation value of avoided energy and capacity provided to eligible customer-generators should not exceed what LG&E/KU would generally pay in a solar PPA.⁴² Assuming the fixed-tilt solar system would provide energy for 20 years, LG&E/KU estimate that the avoided generation capacity cost for a 20-year PPA that begins in 2022–2033 would average \$0.00181/kWh.⁴³

Avoided Transmission Capacity: LG&E/KU argued that, because their system loads are projected to decrease over the next ten years, the energy supplied to the grid by eligible customer-generators will not likely avoid any future plant investment.⁴⁴ Furthermore, LG&E/KU stated that their existing transmission infrastructure should generally be adequate to serve future loads on the system.⁴⁵ If the Commission were to

³⁹ *Id.* at 30.

⁴⁰ *Id.* at 22.

⁴¹ *Id.* at 22.

⁴² *Id.* at 23.

⁴³ *Id.* at 24.

⁴⁴ *Id.* at 25.

⁴⁵ *Id.* at 25.

require transmission capacity as an avoided cost component, LG&E/KU estimated an avoided cost of \$0.00010/kWh for LG&E and \$0.00025/kWh for KU.⁴⁶ This value is based on the reduction of annual carrying cost of future transmission plant additions.⁴⁷

Avoided Distribution Capacity: LG&E/KU argued that net metering would not result in any avoided distribution capacity costs.⁴⁸ LG&E/KU asserted that energy supplied to the grid by eligible customer-generators will not likely avoid any future plant investment.⁴⁹ If the Commission were to require distribution capacity as an avoided cost component, LG&E/KU estimated an avoided distribution cost of \$0.00012/kWh for LG&E and \$0.00046/kWh for KU, derived from the a reduction in future carrying costs associated with distribution plant additions.⁵⁰

Avoided Carbon: LG&E/KU argued against including avoided carbon cost in net metering export compensation rates.⁵¹ LG&E/KU asserted that avoided environmental compliance costs are fully accounted for in the avoided energy and capacity cost components.⁵² LG&E/KU further asserted that including avoided carbon cost in NMS 2 rates is unwarranted because there are currently no laws or regulations that put a price

⁴⁶ *Id.* at 26.

⁴⁷ *Id.* at 26.

⁴⁸ *Id.* at 27.

⁴⁹ *Id.* at 27.

⁵⁰ *Id.* at 28.

⁵¹ *Id.* at 28–29.

⁵² *Id.* at 28.

on carbon emissions. LG&E/KU argued that, if carbon regulation is introduced in the future, then the avoided cost component could be included in a future filing.⁵³

Avoided Environmental Compliance: LG&E/KU rejected the inclusion of an environmental compliance component for similar reasons that it rejected including avoided carbon costs in NMS 2 rates because avoided environmental compliance costs are fully accounted for in the avoided energy and capacity cost components.⁵⁴

Job Benefits: LG&E/KU argued that job creation would not affect their cost of providing service, lacks a direct connection to utility rates, and that requiring utilities to include job creation benefits in the calculation of net metering export compensation rates is outside the scope of the Commission's statutory authority.⁵⁵ Therefore, LG&E/KU argued that the job benefit component should not be included in net-metering compensation.⁵⁶

LG&E/KU's proposed NMS 2 compensation rates are summarized in the table below:

⁵³ *Id.* at 28.

⁵⁴ *Id.* at 28.

⁵⁵ Seelye July 13, 2021 Testimony at 29; and Conroy July 13, 2021 Testimony at 4–10.

⁵⁶ Seelye July 13, 2021 Testimony at 29.

Avoided Cost Component	Kentucky Utilities Company		Louisville Gas & Electric Company	
	Recommended Avoided Cost (\$/kWH)	Maximum Avoided Cost (\$/kWH)	Recommended Avoided Cost (\$/kWH)	Maximum Avoided Cost (\$/kWH)
Avoided Energy Cost				
Avoided Energy Cost	\$ 0.02319	\$ 0.02319	\$ 0.02319	\$ 0.02319
Line Losses	None	\$ 0.00100	None	\$ 0.00053
Hedging Value	None	None	None	None
Total Avoided Energy Cost	\$ 0.02319	\$ 0.02419	\$ 0.02319	\$ 0.02372
Avoided Ancillary Service Cost	None	\$ 0.00006	None	\$ 0.00006
Avoided Generation Capacity Cost	None	\$ 0.00181	None	\$ 0.00181
Avoided Transmission Capacity Cost	None	\$ 0.00025	None	\$ 0.00010
Avoided Distribution Capacity Cost	None	\$ 0.00046	None	\$ 0.00012
Avoided Environmental Cost	None	None	None	None
Jobs Benefit	None	None	None	None
Total	\$ 0.02319	\$ 0.02677	\$ 0.02319	\$ 0.02581

57

LG&E/KU contended that an eligible customer-generator's instantaneous, behind the meter consumption will offset their production on a one-to-one kWh basis, so that the customer-generator's value of energy would be the same under NMS 1 and NMS 2.⁵⁸

KYSEIA

1. SQF and LQF

⁵⁷ *Id.* at 30.

⁵⁸ LG&E/KU's Responses to Commission Staff's Second Request for Information (Staff's Second Request for Information), Item 86; *see also* LG&E/KU's Responses to Commission Staff's Eighth Request for Information (Staff's Eighth Request), Item 2.

In the original application, KYSEIA's expert witness, Justin R. Barnes, recommended that, if the Commission approved the originally filed SQF and LQF rates proposed by LG&E/KU, that the following modifications and stipulations be taken into account:

- LG&E/KU's avoided energy costs under SQF and LQF should be modified to include a hedging value and avoided line losses;
- The contract term for SQF should be extended to a minimum of five years;
- Capacity compensation should be established for SQF under the same methodology Mr. Barnes recommended for LQF;
- The LQF avoided energy rate should include variable O&M expenses, avoided line losses, and hedging value in addition to fuel costs;
- The LQF current avoided capacity calculation should apply only during periods of resource sufficiency as indicated by the LG&E/KU's most recent integrated resource plan (IRP) or related proceedings in which LG&E/KU propose to build or otherwise acquire capacity;
- During a period of resource insufficiency, the LQF avoided capacity rate should be based on the cost of a proxy unit defined by LG&E/KU's most recent IRP as the next unit addition; and
- SQF and LQF contracts for the sale of capacity should be for a longer term than five years because capacity planning and acquisition is fundamentally a long-term exercise and the associated avoided capacity costs are long-term in character.⁵⁹

In his supplemental testimony filed after the June 30, 2021 Order, Mr. Barnes reiterated that LG&E/KU's SQF and LQF tariffs fail to account for the actual long-term costs of capacity and line loss costs.⁶⁰

⁵⁹ Supplemental Testimony of Justin R. Barnes (Barnes July 13, 2021 Testimony) at 7–8, 14, and 23–24.

⁶⁰ Barnes July 13, 2021 Testimony at 16.

Following LG&E/KU's revised QF tariff proposal with 2-year and 20-year contract terms and resource-specific avoided energy and avoided capacity rates, Mr. Barnes proposed an alternative rate design based, in part, on LG&E/KU's own data. Mr. Barnes' recommendations included the following:

- Accept LG&E/KU's proposal to offer a 2-year and 20-year contract terms for both SQF and LQF tariffs;
- Deny LG&E/KU's proposed capacity pricing design and instead adopt a summer on-peak capacity rate design using a natural gas combined cycle unit proxy and LG&E/KU's Loss of Load Probability (LOLP) study and data in their latest IRP;
- Tie capacity payments to QF production during peak times, which produces a technology-neutral rate that allows QFs to earn based on their performance during peak period; and
- Adopt avoided energy and avoided capacity rates for distribution-connected QFs that reflect a higher value than transmission-connected QFs because distribution-connected QFs do not back feed to the transmission system and therefore do not incur transmission losses.⁶¹

Mr. Barnes recommended that, in the event that the Commission declines to adopt a summer on-peak capacity rate and instead adopts the current market price method proposed by LG&E/KU, that the Commission modify LG&E/KU's SQF and LQF rate design as follows:

- Use LevelTen pricing indices instead of the Rhudes Creek PPA market price proposed by LG&E/KU;
- Use LevelTen pricing from the two most recent quarters to determine the average market rate, resulting in an all-in rate of \$35.45/MWh for solar resources;

⁶¹ Supplemental Rebuttal Testimony of Justin R. Barnes (filed Aug. 5, 2021 Testimony) (Barnes August 5, 2021 Testimony) at 4–22.

- Apply the all-in price of \$34.45/MWh as a true all-in rate without a separate calculation of a capacity rate based on the year of LG&E/KU's projected future capacity need; and
- Use an adder or other adjustment to reflect the fact that the LevelTen pricing indices reflect only the lowest cost offers on the platform rather than average, median, or 50th percentile offers.⁶²

Finally, KYSEIA witness, Mr. Barnes recommended that, if the Commission utilizes LG&E/KU's proposed CT peaker method to determine avoided capacity rates and does not adopt Mr. Barnes' proposed summer on-peak rate pricing proposal, the on-peak capacity factor for fixed tilt solar used in the calculation should be modified to reflect his solar LOLP analysis.⁶³ In addition, Mr. Barnes recommended that the peak capacity contribution for single-axis tracking solar be revised using the same methodology.⁶⁴

In its post-hearing brief, KYSEIA provided an in-depth review of federal and state avoided cost calculations to guide the Commission's decision, and asserted that KYSEIA's recommendations address the factors established by federal law that the Commission can consider in its decision.⁶⁵ KYSEIA argued that LG&E/KU's proposed SQF and LQF rates discriminate against solar QFs because the proposed rates assigned different capacity rates for each type of resource (solar, wind, and other) that was not based on actual avoided costs.⁶⁶ KYSEIA further argued that, as a result of the flawed methodology, solar QFs receive lower credit than other resource types, however,

⁶² *Id.* at 22–23.

⁶³ *Id.* at 23.

⁶⁴ *Id.* at 23.

⁶⁵ KYSEIA Post-Hearing Brief (filed Sept. 7, 2021) (KYSEIA September 7, 2021 Brief) at 2–12.

⁶⁶ *Id.* at 13.

LG&E/KU's data demonstrates that solar QFs provide a higher benefit than other resources, particularly when LG&E/KU's loss of load probability is the highest.⁶⁷ KYSEIA asserted that, because federal and state laws require QF rates to be non-discriminatory, LG&E/KU's proposed rates should be rejected because the SQF and LQF rates discriminate against solar QFs.⁶⁸

2. NMS 2

In testimony and briefing after the June 30, 2021 Order, KYSEIA addressed both the billing netting period and avoided cost components. KYSEIA's witness, Mr. Barnes, recommended that the Commission reject LG&E/KU's proposal to change from monthly bill netting to a dollar-denominated bill credit for all exported generation. Mr. Barnes argued that LG&E/KU's proposal would confuse eligible customer-generators because it lacked clarity and transparency, and made it difficult for customers to analyze the financial viability of an eligible generating facility. Mr. Barnes recommended that the Commission adopt the same monthly netting for LG&E/KU that was approved for Kentucky Power net metering tariff in Case No. 2020-00174.⁶⁹

In witness testimony and in briefing, KYSEIA proposed avoided cost component calculations for the NMS 2 export compensation rate as follows:

Avoided Energy Cost: KYSEIA proposed an avoided energy cost component for LG&E of \$0.0256/kWh and \$0.0262/kWh for KU.⁷⁰ KYSEIA calculated the avoided

⁶⁷ *Id.* at 13.

⁶⁸ *Id.* at 13.

⁶⁹ Barnes August 5, 2021 Testimony at 24–25.

⁷⁰ Barnes August 5, 2021 Testimony at 28; KYSEIA September 7, 2021 Brief at 14.

energy cost based on LG&E's PJM interface three-year, daytime-only rate with escalation and discounting over time, and incorporated transmission and distribution line losses.⁷¹ KYSEIA proposed that, if the Commission calculates the avoided energy cost based on LG&E/KU's proposed methodology, then two modifications should be made: (1) a discount rate of 6.57 percent should be used in place of the 1.40 percent risk-free discount rate used by LG&E/KU; and (2) a loss adder should be applied to reflect avoided transmission and distribution losses of 5.33 percent and 7.65 percent for LG&E and KU, respectively.⁷²

Avoided Generation Capacity Costs: KYSIEA proposed an avoided generation capacity cost based on PJM net cost of new entry (Net CONE) for a CT and modeled fixed-tilt solar resource of \$0.0391/kWh for LG&E and \$0.0401//kWh for KU.⁷³ KYSEIA asserted that a CT is a reasonable proxy upon which avoided generation capacity cost should be based and is consistent with LG&E/KU's assumptions in their most recent IRP.⁷⁴ KYSEIA argued that using Net CONE meets the Commission's objective, set forth in Case No. 2020-00174, of using publicly available data to promote transparency in rate setting and provides a market-based capacity value.⁷⁵ KYSEIA maintained that the three-

⁷¹ Barnes August 5, 2021 Testimony at 28; KYSEIA September 7, 2021 Brief at 14.

⁷² Barnes August 5, 2021 Testimony at 28; KYSEIA September 7, 2021 Brief at 15. KYSEIA inadvertently transposed the digits for the 6.75 percent discount rate in the September 7, 2021 Brief as 6.57 percent. See Sinclair July 13, 2021 Testimony, Supplemental Exhibit DSS-1 at footnote 3.

⁷³ KYSEIA September 7, 2021 Brief at 16.

⁷⁴ *Id.* at 16.

⁷⁵ *Id.* at 16.

year average of PJM Zone 3, Unforced Capacity (UCAP) Net CONE for a natural gas CT is a reasonable proxy to use in calculating avoided generation capacity costs.⁷⁶

Avoided Transmission Capacity Costs: KYSIEA proposed an avoided transmission capacity cost using LG&E/KU's LOLP methodology of \$0.01050/kWh for LG&E and \$0.02065/kWh for KU.⁷⁷ KYSEA calculated avoided transmission capacity costs based on the marginal cost per kW of incremental transmission capacity, the alignment of solar production shape with the peaks that define cost causation, and the portion of the unit cost of a given kW of solar nameplate that can be avoided.⁷⁸

KYSEIA's proposed avoided transmission capacity cost do not include an escalation rate. KYSEIA contended that applying an escalation rate based on the annualized escalation of net cost transmission rate base, which is consistent with the methodology established in Case No. 2020-00174, results in an inflated avoided transmission capacity cost due to the amount of transmission investment in LG&E/KU's service territory.⁷⁹ KYSEIA proposed that, if the Commission uses an escalation rate, that LG&E/KU's escalation in the net cost of service be applied, which is 2.01 percent for LG&E and 4.19 percent for KU.⁸⁰ Under this escalation rate basis and LOLP methodology, LG&E's avoided transmission capacity cost is \$0.01327/\$kWh and KU's is

⁷⁶ *Id.* at 20.

⁷⁷ *Id.* at 20.

⁷⁸ *Id.* at 20–21.

⁷⁹ *Id.* at 21.

⁸⁰ *Id.* at 21.

\$0.03426/\$kWh.⁸¹ However, KYSEIA recommended that the Commission not use an escalation rate and instead approve avoided transmission capacity costs of \$0.01050/kWh for LG&E and \$0.02065/kWh for KU.⁸²

Avoided Distribution Capacity Costs: KYSEIA proposed a minimum amount of avoided distribution capacity cost component as \$0.00251/kWh for LG&E and \$0.00147/kWh for KU.⁸³ KYSEIA developed the avoided distribution capacity costs using a similar methodology as KYSEIA used to develop the avoided transmission capacity costs.⁸⁴ For similar reasons discussed above, KYSEIA expressed concerns regarding the escalation rate. KYSEIA argued that its recommended avoided distribution capacity cost is “sufficiently similar” to a moderate escalation cost based on net cost rate base.⁸⁵

Avoided Ancillary Services Cost: KYSEIA proposed an avoided ancillary services cost component as \$0.0006/kWh for both LG&E and KU.⁸⁶ KYSEIA maintained that the avoided ancillary services cost should be forward-looking⁸⁷ and that the PJM pricing used in Case No. 2020-00174 is a reasonable proxy for LG&E/KU because the PJM pricing represents market-based costs.⁸⁸

⁸¹ *Id.* at 21–22.

⁸² *Id.* at 21–22.

⁸³ *Id.* at 24.

⁸⁴ *Id.* at 24.

⁸⁵ *Id.* at 28.

⁸⁶ *Id.* at 24.

⁸⁷ *Id.* at 29.

⁸⁸ *Id.* at 29.

Avoided Carbon Cost: KYSEIA proposed an avoided carbon cost of \$0.00578/kWh for both LG&E and KU. KYSEIA argued that the Commission should use the same rate approved for Kentucky Power's avoided carbon costs in Case No. 2020-00174. KYSEIA argued that using LG&E/KU's IRP forecasted generation mix to develop an avoided carbon cost would be faulty because it would not incorporate LG&E/KU's parent entity's goal of reducing carbon emissions to net zero by 2050.⁸⁹ KYSEIA further argued the LG&E/KU's generation mix is not sufficiently different from Kentucky Power's generation mix, and thus is a reasonable proxy.⁹⁰

Avoided Environmental Compliance Cost: KYSEIA recommended that the Commission apply a levelized \$/kWh amount of avoided environmental compliance cost component based on a forward projection of all the environmental compliance costs for LG&E and KU.⁹¹ KYSEIA was unable to provide a specific cost, arguing that LG&E/KU did not provide the data needed to perform a calculation for a specific recommendation, and that the lack of data does not eliminate the existence of the avoided cost.⁹²

Jobs and Economic Benefits Component: KYSEIA proposed that LG&E/KU be required to evaluate job benefits and economic development as an export rate component for their next rate case filing through an unbiased and objective valuation.⁹³

⁸⁹ *Id.* at 30.

⁹⁰ *Id.* at 31.

⁹¹ *Id.* at 31.

⁹² *Id.* at 31–32.

⁹³ *Id.* at 33.

JOINT INTERVENORS

1. SQF and LQF

In their September 7, 2021 brief, Joint Intervenor stated that they support KYSEIA's recommendations for SQF and LQF avoided energy cost, avoided generation capacity cost, and QF contract periods.

2. NMS 2

The Joint Intervenor argued that the Commission reject LG&E/KU's proposal to assign an instantaneous credit value to all energy exported to the grid rather than to net energy consumption and export because LG&E/KU's proposal is inconsistent with the statutory requirements. Joint Intervenor asserted that netting consumption and export over the course of the monthly billing period was consistent with the legislative intent and language of KRS 278.465(4).⁹⁴

Joint Intervenor argued that the relationship between an eligible customer-generator and the utility is not equivalent to the relationship between a QF and the utility, and thus, LG&E/KU's linkage of net metering to QF regarding rates should be rejected.⁹⁵

Regarding the avoided cost components, Joint Intervenor argued that the Commission should develop net metering export compensation rates using, in part, the methodology developed by the Minnesota Public Utility Commission regarding the value of solar (Minnesota VOS). Joint Intervenor's witness, Karl Rábago, who participated in the development of Minnesota VOS, explained that the Minnesota VOS is a reasonable

⁹⁴ Joint Intervenor Post-Hearing Brief (filed Sept. 7, 2021) (Joint Intervenor September 7, 2021 Brief) at 13–15.

⁹⁵ *Id.* at 15–19.

methodology, particularly because modifications have improved the methodology, which utilizes best-practice processes including standardization of valuation methods and transparent data.⁹⁶ Asserting that LG&E/KU failed to provide sufficient data, Joint Intervenors recommended that the Commission reject LG&E/KU's proposed NMS 2 rate and require LG&E/KU to provide an updated analysis. In the alternative, Joint Intervenors recommend that the Commission apply default values and ranges from a Hayibo and Pearce study referenced in Mr. Rábago's testimony.⁹⁷

Joint Intervenors support the avoided cost component calculations proposed by KYSEIA.⁹⁸ In briefing, Joint Intervenors provided additional recommendations regarding the avoided cost components, but did not provide recommended amounts, again noting the lack of data provided by LG&E/KU.⁹⁹

ATTORNEY GENERAL/KIUC

In briefing, the Attorney General/KIUC encouraged the Commission to reject the capacity pricing methodology approved in Case No. 2020-00174 and KYSEIA's avoided cost pricing approach. The Attorney General/KIUC argued that the Commission should approve a competitive solicitation pricing approach to QF avoided capacity cost pricing because it would be nondiscriminatory to QFs and would result in just and reasonable rates for retail electric customers, and thus would comply with the requirements of federal

⁹⁶ *Id.* at 20–22.

⁹⁷ *Id.* at 25.

⁹⁸ *Id.* at 25.

⁹⁹ *Id.* at 25–37.

law.¹⁰⁰ The Attorney General/KIUC asserted that LG&E/KU's proposed NMS 2 compensation rate would result in fair, just and reasonable rates for all customers, and should be approved.¹⁰¹

DISCUSSION AND FINDINGS

1. SQF AND LQF

QF Contract Terms

As discussed above, LG&E/KU proposed to change SQF and LQF tariffs to allow 2-year and 20-year contracts. KYSEIA and Joint Intervenors supported LG&E/KU's proposed 2-year and 20-year contracts as being reasonable. Based upon a review of the case record and being otherwise sufficiently advised, the Commission finds that the 2-year QF contract term is just and reasonable, and, therefore, should be approved as it provides a reasonable alternative for QFs that do not want a longer-term commitment and because the 2-year contract term is based upon LG&E/KU's short-term avoided cost, which is to be updated every two years.

Also based upon a review of the record and being otherwise sufficiently advised, the Commission finds that LG&E/KU's proposed 20-year QF contract term is not just and reasonable, and therefore should be denied. The Commission agrees that QFs should have the ability to enter into a long-term commitment with LG&E/KU. A 20-year contract may provide price certainty to QF developers and is more than sufficient for obtaining financing for QF projects. However, the longer the contract, the more likely the actual

¹⁰⁰ Attorney General/KIUC Post-Hearing Brief (filed Sept. 7, 2021) (Attorney General/KIUC September 7, 2021 Brief) at 6-7.

¹⁰¹ *Id.* at 19-20.

costs to the utility will deviate from the avoided costs estimated at the beginning of the contract. While some deviation is inevitable, the difference should reasonably balance associated risk for ratepayers, developers, and the utility. Therefore, the Commission concludes that the proposed 20-year contract term does not reflect a reasonable balance of the associated risk because, for the reasons set forth above, 20 years may be longer than necessary to achieve the policy goals of the Public Utility Regulatory Policies Act (PURPA).

The Commission notes that none of the parties provide evidence for a long-term contract shorter than the proposed 20-year contract term. Although the Commission agrees that a longer-term commitment is reasonable, the Commission finds that a 7-year QF contract term is sufficient to achieve the desired policy goals while better ensuring ratepayer protection. In reaching this determination, the 15-year resource planning horizon used by LG&E/KU in their IRP, which is incorporated by reference in this case by Order entered June 30, 2021, was evaluated but concluded that, for the reasons similarly set forth above, a 15-year contract term may also be longer than necessary to achieve the policy goals of PURPA. Seven years is one-half of LG&E/KU's planning horizon, and the Commission believes that such a time period is a sufficient to provide price certainty to QF developers, is sufficient for obtaining financing for QF projects, and represents a reasonable balance of associated risk for ratepayers, developers, and the utility. The Commission will monitor the pace of development and the accuracy of the utility avoided cost forecasts and may wish to revisit the contract length in the future, particularly for existing QFs that are renewing their contracts, who do not need a relatively long contract to obtain project financing.

QF Cost Components

Avoided Energy Cost: Based upon a review of the record and being otherwise sufficiently advised, the Commission finds that LG&E/KU's avoided energy cost proposal is reasonable but lacks transparency. The Commission concurs that it is reasonable to estimate avoided energy costs from different technologies using forecasted hourly energy costs developed in PROSYM. However, the proprietary nature of the production cost model limits the Commission's ability to assess its reasonableness. The full range of LG&E/KU's assumptions, inputs, and outputs was inaccessible to other parties and to the Commission without several rounds of discovery.¹⁰² Additionally, parties and the Commission could not re-run the model with alternate inputs to explore variations on LG&E/KU's assumptions. This lack of transparency will likely become increasing problematic as renewable energy penetrations increase and modeling assumptions become more complex and important.

For this reason, the Commission finds that, in future cases, including those updating LG&E/KU's IRP and QF rates, LG&E/KU should improve the transparency of their avoided energy and any other costs that are calculated using proprietary software by increasing access to the software, inputs, and assumptions relied upon. While the Commission will not at this time prescribe a method for doing so, LG&E/KU should submit, within 90 days of the entry of this Order, a filing that details how LG&E/KU will increase the transparency of their modeling to the Commission. At a minimum, LG&E/KU's plan should allow for one model re-run per intervening party and the Commission per

¹⁰² For example, emission allowance prices and emission rates per unit; or a breakdown of all cost components of the modeled variable operation and maintenance (O&M) costs, including detailed descriptions of each component and itemized component costs in \$/MWh.

proceeding, upon a party's request, and for the provision of inputs and assumptions to the models in native formats within the initial filing.

The Commission also reviewed the non-fuel variable costs included in the avoided energy cost component and found them to be lower than expected. According to discovery responses, variable costs, as included in LG&E/KU's PROSYM modeling and avoided energy cost calculations, include chemical consumables.¹⁰³ Additional costs, including wear and tear of the equipment or labor costs, could be included in the non-fuel variable operation and maintenance (O&M) costs driving avoided energy cost rates to be slightly higher. Within 90 days of the date of entry of this Order, LG&E/KU should submit a filing that explains how non-fuel O&M costs are determined to be variable and fixed costs.

As discussed above, despite the opacity of LG&E/KU's proprietary model, the Commission finds the PROSYM avoided energy costs to be reasonable. Therefore, the Commission approves LG&E/KU's \$0.02319 avoided energy cost rate.

Avoided Line Losses: In rebuttal and supplemental testimony, LG&E/KU's witness, Steve Seelye, testified that a line loss component should not be included in the avoided energy cost.¹⁰⁴ However, if the Commission does include some line loss, Mr. Seelye continued, it is only permissible to include avoided variable transmission losses and a portion of non-core losses on the primary voltage system. LG&E/KU do not include or address transmission or distribution losses for demand. KYSEIA argued that the Commission should include transmission losses for both energy and demand from

¹⁰³ LG&E/KU's Response to Staff's Eighth Request, Item 10(d), Attachment.

¹⁰⁴ Seelye July 13, 2021 Testimony at 9.

LG&E/KU line loss studies.¹⁰⁵ The Commission affirms that it is necessary to include line losses as part of QF and NEM rates where generation is located on the distribution system.

Beginning with transmission losses, the Commission accepts LG&E/KU's proposal to include only variable transmission losses and exclude fixed transmission line losses. However, the Commission also agrees with KYSEIA's proposal to also include both energy and demand losses.¹⁰⁶

For distribution losses, the Commission rejects LG&E/KU adjustments to their line loss study, and adopts energy and demand distribution losses for the primary component.¹⁰⁷ In response to discovery requests, LG&E/KU responded that the 80percent adjustment for variable losses is based on Mr. Seelye's experience working with loss studies for electric utilities, and that percentage of fixed losses on the primary system is 90.70 percent because it is Mr. Seelye's experience that fixed losses are higher because of greater prevalence of transformers on the primary system as compared to the transmission system.¹⁰⁸ The Commission does not find the Mr. Seelye's opinion,

¹⁰⁵ Barnes August 5, 2021 Testimony at 5–6.

¹⁰⁶ The Commission notes that LG&E/KU excluded demand losses without an explanation or discussion in their testimony, but demand loss factors were explicitly considered in LG&E/KU's system losses study. LG&E/KU's Response to Commission Staff's Fifth Request for Information (Staff's Fifth Request), Item 20, at 4 of 51. "The study developed separate demand (kW) and energy (kWh) loss factors for each voltage level of service in the power system for KU. The cumulative loss factor results by voltage level, as presented herein, can be used to adjust metered kW and kWh sales data for losses in performing cost of service studies, determining voltage discounts, and other analyses which may require a loss adjustment."

¹⁰⁷ The Commission is not including secondary losses at this time, however, is interested in examining this components further in a future proceeding.

¹⁰⁸ LG&E/KU's Response to Commission Staff's Seventh Request for Information (Staff's Seventh Request), Item 13.

particularly one who is not an engineer, sufficient for informing technical line losses in this case. Neither estimate is supported by credible evidence nor does LG&E/KU admit that their line loss study did not explicitly examine the percentage of fixed losses on the distribution system.

The Commission finds that the avoided energy loss components for LG&E and KU should be 2.772 percent and 4.748 percent and demand loss components are 4.139 percent and 6.449 percent, respectively.¹⁰⁹ This is based upon the LG&E and KU 2010 Analysis of System Losses and includes both energy and demand losses for transmission and primary.

Avoided Generation Capacity Costs: The Commission finds that LG&E/KU's proposal to use the current market price method to estimate the avoided generation capacity cost unreasonable as, for the reasons discussed below, it is not an appropriate approximation of LG&E/KU's actual avoided capacity cost. Based upon the evidence of record, the Commission adopts the use of a simple cycle CT as the proxy for estimating avoided generation capacity costs.

LG&E/KU witness, David Sinclair asserted that LG&E/KU's current market prices method "mirrors LG&E/KU's longstanding process for procuring capacity, namely going to the market for new capacity options and comparing the market to the cost of self-building new capacity."¹¹⁰ Although valuing the avoided energy and generation costs to a utility based on market prices is a valid method, LG&E/KU have not proposed such a

¹⁰⁹ KU's transmission losses are 2.564% for energy and 3.112% for demand. LG&E's transmission losses are 0.807% for energy and 1.393% for demand. KU's primary losses are 2.184% for energy and 3.337% for demand. LG&E's primary losses are 1.965% for energy and 2.746% for demand.

¹¹⁰ Sinclair July 13, 2021 Testimony at 8.

reasonable option in this record. The competitive market methodology works best where the utility participates in an organized market and procures energy, capacity, and ancillary services. However, LG&E/KU do not fully participate in an organized market nor are they proposing a suitable alternative.

Rather, LG&E/KU created their own substitution for a market-based method in which LG&E/KU choose to value the avoided capacity of technologies at the lower of two market proxies, both of which are flawed. First, the Commission agrees with KYSEIA that it is problematic to rely on a single PPA, the Rhudes Creek PPA, to set rates, as one contract does not determine the market price.¹¹¹ Any one PPA may have unique characteristics (e.g., the availability of the PPA was an anomaly because the project was a stranded asset) and is not necessarily indicative of the market nor the utility's avoided capacity cost. Second, the Commission rejects LG&E/KU's use of the LevelTen Energy PPA Price Index Report. Although the Index Report is an improvement upon the reliance of a single PPA, it too is problematic. The Commission agrees with KYSEIA's criticism that the LevelTen Index is backward looking rather than indicative of the actual cost to LG&E/KU for future capacity. Furthermore, the LevelTen Index only captures offered prices and not actual project executions. Rather than reduce costs to ratepayers, LG&E/KU's recommendation could result in incremental costs to LG&E/KU's ratepayers because their failure to recognize the true avoided cost of intermittent renewable assets could spur investment in much costlier, and riskier, thermal resources.

¹¹¹ Barnes August 5, 2021 Testimony at 12.

The Commission adopts the use of a simple cycle CT as the proxy for avoided generation capacity. As LG&E/KU proposed,¹¹² and KYSEIA acknowledged,¹¹³ using a CT as a proxy for avoided generation capacity is a well-founded methodology that has been used by utilities in Kentucky and is used across the country for valuing avoided generation capacity. Although neither the Commission nor the utilities know which resource LG&E/KU will procure as their next capacity resource, as that is greatly dependent on the results of a specific request for proposal (RFP), a CT is the best generic substitute as it is generally regarded as the least-cost capacity resource. By relating the expected costs of a new CT to the generation of solar and wind resources, this method offers a reasonable proxy of the costs LG&E/KU's ratepayers would be able to forgo by contracting intermittent assets.

The Commission notes that we are not adopting the peaker methodology, as referenced by KYSEIA,¹¹⁴ but assigning a generic CT as the proxy for capacity in this case. As the electric industry continues a transformational change, we acknowledge that another resource may become a more suitable proxy for valuing capacity in the future. As a final determination on this specific issue, we also reject KYSEIA's proposal to use a natural gas combined cycle as the appropriate proxy resource as it is not the appropriate, least-cost proxy unit for valuing avoided capacity.

Having decided the appropriate proxy value, the Commission must now evaluate the three other KYSEIA proposals: (1) to use its summer on-peak capacity rate design,

¹¹² Sinclair July 13, 2021 Testimony at 7.

¹¹³ Barnes August 5, 2021 Testimony at 18.

¹¹⁴ *Id.* at 23.

(2) create a single, technology-neutral rate, and (3) to reflect the avoided energy and demand losses for distribution-connected QFs.

First, the Commission declines to adopt the summer on-peak capacity proposal at this time, but without prejudice. The Commission shares KYSEIA's concern that LG&E/KU's simple averaging method conflicts with proper planning procedures and does not reflect the value of QF capacity at the most critical times. KYSEIA's summer-on peak method tries to calculate the contribution of solar to the grid relative to the risk of a capacity shortfall at a given hour in a year.¹¹⁵ KYSEIA's analysis is directionally accurate; however, the method articulated by KYSEIA is not technically accurate and would result in unreasonable avoided cost rates.¹¹⁶ While the LOLP trends into a more precise assignment of value to resources, an effective load carrying capacity (ELCC) analysis more accurately models resource value to the system. Therefore, the Commission finds that LG&E/KU should implement an ELCC method for valuing resource's capacity contribution.

Regarding whether to adopt a single, technology-neutral rate, the Commission declines as it is appropriate to differentiate each resource's ability to avoid generation capacity. The Commission would expect that using an ELCC method for calculating a resource's capacity credit will further highlight the various resources benefits to the grid.

¹¹⁵ *Id.* at 31–32.

¹¹⁶ Additionally, LOLP are inputs into loss of load expectations, which are then used to create effective load carrying capacity (ELCC) that are used in resource planning applications. While no ELCC is present within the record, it would be a more accurate measure of capacity value. Given that the LOLP resulted in greater than \$90/MWh avoided cost rates, which is obviously high and not in the public interest, the Commission questions the accuracy of using the LOLP in place of a more sophisticated ELCC approach in this case.

As discussed in the Avoided Line Losses section above, the Commission is adopting KYSEIA's recommendation to reflect avoided energy and demand transmission losses for QFs interconnected at the distribution level.

Finally, the Commission also has determined that LG&E/KU will have a capacity need in 2025, not 2028, as proposed by LG&E/KU. Mr. Sinclair asserted that there is regulatory uncertainty regarding the timing of the retirements of two plants, and, as such, estimates LG&E/KU's future need for generating capacity as the average of two scenarios.¹¹⁷ The first scenario assumes that the retirements will be carried out by 2028, as noted in the 2021 Business Plan.¹¹⁸ The second scenario assumes that units will be retired in 2034 and 2035, respectively, at the end of their depreciable lives.¹¹⁹ This averaging method results in a decrease of summer capacity need by approximately 50 percent for the years 2028-2033. However, earlier this year LG&E/KU issued an RFP for resources to meet a potential energy and capacity shortfall due to the closure of these same plants beginning in 2025 to 2028.¹²⁰ LG&E/KU stated that they are considering an additional 300–900 MW beginning in 2025 and possibly earlier. LG&E/KU did not discuss the presence of this RFP within their filing and how it relates to their capacity need determination. Additionally, when asked to explain the relationship before the RFP's capacity install year of 2025 or earlier, LG&E/KU could not explain why LG&E/KU claimed

¹¹⁷ Sinclair July 13, 2021 Testimony, at 13 and DSS–2 at 1–2.

¹¹⁸ Sinclair July 13, 2021 Testimony, at 13 and DSS–2 at 1–2.

¹¹⁹ Sinclair July 13, 2021 Testimony, at 13 and DSS–2 at 1–2.

¹²⁰ August 17, 2021 Hearing, PSC Staff Exhibit 7.

2028 as the first-year capacity was needed.¹²¹ LG&E/KU's proposal in this case artificially depresses the future incremental capacity need of LG&E/KU relative to their solicitation and recognition in the RFP.

The Commission finds LG&E/KU's two positions in contradiction, and when presented with such a circumstance, places greater weight on LG&E/KU's actions rather than their words. LG&E/KU's action to solicit bids for capacity demonstrates a capacity need before 2028. Thus, the Commission determines that LG&E/KU's capacity need begins in 2025 and will adjust the avoided cost rates accordingly.

QF Avoided Cost Rates

The Commission adopts the following avoided cost rates for QFs until the next avoided cost filing. Consistent with federal rules, a QF is entitled to the avoided costs calculated at the time of delivery, or the avoided costs calculated at the time the obligation is incurred.¹²² To satisfy the second option, it is necessary for LG&E/KU to publish the estimated avoided costs in their SQF and LQF tariffs. Consistent with the Commission's findings discussed above, the tariff should include a 2-year and a 7-year contract. Consistent with federal rules, a QF is entitled to the estimated rates at the time it establishes a legally enforceable obligation.¹²³ To reduce the likelihood of disputes before the Commission, the Commission requires LG&E/KU to offer four avoided cost rates to QFs, 2-year and 7-year contracts that exclude line losses for projects that interconnect on the transmission system, and 2-year and 7-year contracts for projects that interconnect

¹²¹ August 18, 2021 Hearing Video Transcript (HVT) at 3:18:21.

¹²² 18 CFR §292.304(8)(d).

¹²³ 18 CFR §292.304(8)(d)(ii).

on the distribution system and include line losses. Because LG&E/KU intend to refile their avoided cost rates every two years, the Commission finds that LG&E/KU will refile avoided cost rates beginning in the fall of 2023. For the first two years, to simplify rates, the Commission will average the rates for 7-year contracts that begin in 2022 and 2023 (See Tables 3 and 6).

Table 1: Qualifying Facility Avoided Energy Rates for Transmission Connected Projects, without Line Losses

	QF Avoided Energy (without line losses for transmission connected projects)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$22.94	\$23.85	\$23.92
Solar: Fixed Tilt	\$23.19	\$24.07	\$24.14
Wind	\$22.51	\$23.71	\$23.83
Other	\$22.04	\$22.98	\$23.07

Table 2: Qualifying Facility Avoided Capacity Rates for Transmission Connected Projects, without Line Losses

	QF Avoided Capacity, 2025 Need (without line losses for transmission connected projects)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$0.00	\$15.61	\$17.29
Solar: Fixed Tilt	\$0.00	\$18.78	\$20.79
Wind	\$0.00	\$12.31	\$13.64
Other	\$0.00	\$10.89	\$12.06

Table 3: Qualifying Facility Avoided Cost Rates for Transmission Connected Projects, without Line Losses

	QF All-In Avoided Cost Rates (without line losses for transmission connected projects)	
	2-Year PPA	2022/2023 Avoided Cost Rate
Solar: Single-Axis Tracking	\$22.94	\$40.34
Solar: Fixed Tilt	\$23.19	\$43.89
Wind	\$22.51	\$36.74
Other	\$22.04	\$34.50

Table 4: Qualifying Facility Avoided Energy Rates by Company, with Line Losses

	QF Avoided Energy, KU (with line losses)			QF Avoided Energy, LG&E (with line losses)		
	2-Year PPA	2022	2023	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$24.03	\$24.98	\$25.06	\$23.57	\$24.51	\$24.58
Solar: Fixed Tilt	\$24.29	\$25.22	\$25.29	\$23.83	\$24.74	\$24.81
Wind	\$23.58	\$24.84	\$24.96	\$23.14	\$24.37	\$24.49
Other	\$23.08	\$24.08	\$24.17	\$22.65	\$23.62	\$23.71

Table 5: Qualifying Facility Avoided Capacity Rates by Company, with Line Losses

	QF Avoided Capacity, 2025 Need, KU (with line losses)			QF Avoided Capacity, LG&E (with line losses)		
	2-Year PPA	2022	2023	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$0.00	\$16.62	\$18.40	\$0.00	\$16.26	\$18.01
Solar: Fixed Tilt	\$0.00	\$19.99	\$22.13	\$0.00	\$19.56	\$21.65
Wind	\$0.00	\$13.11	\$14.51	\$0.00	\$12.82	\$14.20
Other	\$0.00	\$11.59	\$12.83	\$0.00	\$11.34	\$12.56

Table 6: Qualifying Facility All-In Avoided Cost Rates for 2-Year and 7-Year Contracts by Company, with Line Losses

	QF All-In Avoided Cost Rate KU		QF All-In Avoided Cost Rate LG&E	
	2-Year PPA	2022/2023 Avoided Cost rate	2-Year PPA	2022/2023 Avoided Cost rate
Solar: Single-Axis Tracking	\$24.03	\$42.53	\$23.57	\$41.68
Solar: Fixed Tilt	\$24.29	\$46.31	\$23.83	\$45.38
Wind	\$23.58	\$38.71	\$23.14	\$37.94
Other	\$23.08	\$36.34	\$22.65	\$35.62

Other Tariffs

Based upon the proposed revised QF rates, LG&E/KU noted that tariff changes to the Solar Share Program Rider and Green Tariff Rider are necessary.¹²⁴ The Solar Share

¹²⁴ Conroy July 13, 2021 Testimony at 12-13.

Program Rider currently states in the Solar Energy Credit section, “If production equaled or exceeded consumption in any relevant period, Company will bill Customer for zero energy consumption for that period and provide a bill credit for each kWh of net production, if any, *at the then-applicable non-time-differentiated rate for Company’s Standard Rate Rider SQF*” (emphasis added). Since the proposed revised SQF rates no longer include a non-time-differentiated rate, LG&E/KU proposed the following revision: “If production equaled or exceeded consumption in any relevant period, Company will bill Customer for zero energy consumption for that period and provide a bill credit for each kWh of net production, if any, at the then-applicable Solar Fixed Tilt rate for energy purchased on an as-available basis under the Company’s Standard Rate Rider SQF.”

The Green Tariff Rider currently states in the Option #3: Renewable Power Agreement section in paragraph b, “Company will also provide Customer a bill credit for all netProduction in each billing period, with all Net Production *to be valued at the avoided energy cost calculated under Company’s Standard Rate Rider LGF* (Sheet No. 56)” (emphasis added). Since the LQF provide avoided energy cost rates under LG&E/KU’s proposal rather than calculations, LG&E/KU requested that the quoted sentence be revised and state: “Company will also provide Customer a bill credit for all Net Production in each billing period, with all Net Production to be valued at the rate then applicable to Customer’s chosen generation technology for energy purchases on an as-available basis under Company’s Standard Rate Rider LQF (Sheet No. 56).”

Based upon the QF rates found reasonable herein and because the structure of the rates mimic LG&E/KU’s proposal, the Commission finds that the revisions to the Solar

Share Program Rider Tariff and Green Tariff Rider are applicable and, therefore, are reasonable.

2. NMS

Guiding Principles

As an initial matter, the Commission developed guiding principles in Kentucky Power Case No. 2020-0017 for compensating eligible customer-generators based upon best practices developed in other states undergoing similar proceedings.¹²⁵ These principles are as follows:

- Evaluate eligible generating facilities as a utility system or supply side resource. Because eligible customer-generators and their eligible generating facilities can meet power system needs, they should be compared with other energy resources using consistent methods and assumptions.
- Treat benefits and costs symmetrically. KRS 278.466(5) provides that electric utilities are “entitled to implement rates to recover . . . all costs necessary to serve their eligible customer-generators.” This is because an evaluation consisting of only the costs incurred by LG&E/KU would be deficient if the evaluation failed to consider known or reasonably expected measurable positive effects, or benefits, that accrue to LG&E/KU. Thus, to avoid bias, it is important to weigh the costs and benefits of a resource symmetrically. As we found in Case No. 2019-00256, “[t]he Commission must develop a process that identifies known or reasonably expected measurable costs and benefits that can be factored into the ratemaking process” for net metering rates that compensate eligible customer-generators for energy exported to the grid.¹²⁶
- Conduct forward-looking, long-term, and incremental analysis. A utility makes economic decisions that consider the entire life of a project, and such long-term analysis should also apply to an eligible customer-generator. Given that the typical warranty provided by a solar panel manufacturer is 25 years, this would be an appropriate analysis period for LG&E/KU’s net metered customers.¹²⁷ A

¹²⁵ Case No. 2020–00174, May 14, 2021 Order at 21–23.

¹²⁶ Case No. 2019–00256, *Electronic Consideration of the Implementation of the Net Metering Act* (Ky. PSC Dec. 18, 2019), Order at 33.

¹²⁷ Joint Intervenors’ Response to Commission Staff’s Second Request for Information (Staff’s Second Request), Item 2, Hayibo, Koami Soulemene & Pearce, Joshua. (2021). “A review of the value of solar methodology with a case study of the U.S. VOS.” *Renewable and Sustainable Energy Reviews*. 137(2): 110599.

long-term approach ensures unbiased evaluation of system resources, ensures ratepayers are paying fair value for avoided future costs, and compensates eligible customer-generators fairly.

- Avoid double counting. There is a risk of counting certain benefits or costs more than once if they fall into multiple categories of benefit or cost. All impacts should therefore be clearly defined and carefully quantified.
- Ensure transparency. Transparency creates trust between parties and allows for a robust public process around resource evaluation. All relevant assumptions, methodologies, and results from any party should therefore be clearly documented and available for stakeholder review and input.¹²⁸

While the principles above were offered in the context of compensating eligible customer-generators, similar principles apply to rate design. For a net metering tariff, rate design principles are relevant not only to the export rate structure, but also to the underlying retail rate that customer-generators pay for their energy consumption. When considering rate designs for either export or consumption, it is important to consider the above principles alongside the additional principles of stability and simplicity.

Distribution Energy Resource Compensation and Integration

Before discussing the specifics of LG&E/KU's NMS 2 proposal, it is important to address distributed energy resources (DER) compensation and integration, and how these issues impact NMS 2 rate setting. DER penetrations on LG&E/KU's system, including distributed generation, electric vehicles, and distributed storage, could increase rapidly based on trends in other states and LG&E/KU's own forecasts.¹²⁹ To create

¹²⁸ While there may be instances in which confidential data provides insight or enables a superior methodological approach, the Commission encourages utilities and stakeholders to rely on public or third-party data to the extent possible. When two methodological approaches are provided in the record, one that relies on public and the other on confidential data, the Commission will have a strong preference for the method that relies on public data.

¹²⁹ LG&E/KU's Response to Commission Staff's Post-Hearing Request for Information (Staff's Post-Hearing Request), Item 2.

benefits for ratepayers, utilities must learn to cost-effectively integrate DERs into planning, procurement, and operational processes. This is no easy feat but failing to do so will result in extreme inefficiency and higher costs for ratepayers.

LG&E/KU's arguments throughout this proceeding demonstrate that LG&E/KU are in their infancy with respect to realizing the value of DERs, and therefore has not begun to comprehensively integrate these resources into their planning or operational processes. Because of LG&E/KU's lack of experience with DERs, they rely on extreme examples from other jurisdictions to justify conclusions made about avoided costs on LG&E/KU's power system. LG&E/KU also made inaccurate statements about how smart inverters provide grid services when incorporated with distributed generators. LG&E/KU rely on these hyperbolic examples and incorrect statements to begin justifying capital investments related to controlling and monitoring DERs.

LG&E/KU's arguments in this case were not grounded in the reality of their own system. LG&E/KU repeatedly pointed to integration issues in jurisdictions with some of the highest distributed generation penetrations in the world, such as California and Arizona,¹³⁰ to support the claim that distributed generation causes more costs than the benefits it creates.¹³¹ Yet, LG&E/KU has expressly acknowledged that no such similar nor lesser disturbances have been caused by distributed generation on LG&E/KU's system.¹³² Furthermore, LG&E/KU explained how technologies, such as inverters, are

¹³⁰ See Sinclair July 13, 2021 Testimony at 12; August 17, 2021 HVT at 2:51:40.

¹³¹ Rebuttal Testimony of William S. Seelye (filed April 12, 2021) (Seelye April 12, 2021 Testimony) at 25.

¹³² August 17, 2021 HVT at 2:52:38.

evolving to mitigate the very same challenges LG&E/KU identified to support their argument that distributed generation creates operational challenges and cause costs on the power system.¹³³ While the Commission understands that challenges remain with DER integration, LG&E/KU rely on extreme examples where distributed generation with traditional technology is present at high penetrations, as opposed to LG&E/KU's system that has very low penetrations of traditional DERs and where further customer adoption of new DER could be integrated with more modern technologies such as smart inverters. The Commission encourages LG&E/KU to ground future analysis in the current and forward-looking circumstances it faces, not other utilities face.¹³⁴

LG&E/KU's lack of familiarity with DER-related IEEE standards and related emerging technology impacted their ability to identify and quantify the costs and benefits that distributed generation brings to the distribution system. LG&E/KU noted that to control the costs that could be caused by distributed generation, they may need to invest in a distributed energy resource management system, or DERMS, to control DERs and the associated smart inverters.¹³⁵ In discovery responses, LG&E/KU went so far as to claim that investment in a DERMS and control of customers' smart inverters were required to enable smart inverters "to support the electric grid during grid disturbances and during normal operation."¹³⁶ These statements concern the Commission for numerous reasons.

¹³³ August 17, 2021 HVT at 2:52:38.

¹³⁴ While lessons can be and should be learned from other jurisdictions, the details of how each utility is positioned should be clearly analyzed to ensure comparisons are relevant and insightful.

¹³⁵ August 17, 2021 HVT at 2:51:40.

¹³⁶ Seelye April 12, 2021 Testimony at 25.

First and foremost, the claim that a DERMS or utility control of customer-owned smart inverters is required for distributed generation to provide grid services is unsupported by the record or experiences in other jurisdictions.¹³⁷ Smart inverters can provide grid services autonomously without the need for a DERMS and without need for utility control of the smart inverter.¹³⁸ The Commission is troubled that LG&E/KU have identified a substantial, ratepayer-funded investment solution without already having evaluated more incremental and likely cost-effective solutions, such as implementing autonomous smart inverter functions.

Second, the Commission is concerned that LG&E/KU's witnesses appear unaware of current interconnection requirements along with relevant IEEE standards, and therefore possess insufficient understanding of threshold cost-effective solutions to integrate distributed generation. LG&E/KU witness, Mr. Seelye, who was responsible for numerous claims associated with distributed generation cost causation and avoided cost methodologies, was not familiar with LG&E/KU's requirement that solar facilities have inverters compliant with UL 1741 and IEEE 1547-2018.¹³⁹ Before Mr. Seelye confessed to being unaware of LG&E/KU's current interconnection requirements, he opined at considerable length about how solar facilities cannot provide reactive power without smart inverters, which was partially and mistakenly the foundation for not considering some

¹³⁷ August 17, 2021 Hearing, PSC Staff Exhibit 3; and August 17, 2021 HVT at 2:51:40.

¹³⁸ See August 17, 2021 Hearing, PSC Staff Exhibit 4.

¹³⁹ August 18, 2021 HVT at 11:05:97; and LG&E/KU's Response to Staff's Seventh Request, Item 36(a).

avoided costs, such as ancillary services, which the Commission addresses below.¹⁴⁰ However, LG&E/KU's requirement for the smart inverter functions to be available, at a cost to the solar facility owner, is distinct from LG&E/KU adopting an approach that enables smart inverters to autonomously provide certain grid services, such as reactive power.¹⁴¹ The Commission observes that LG&E/KU have yet to require or encourage the enablement of smart inverter functionality to support the grid, including through the provision of reactive power.¹⁴² Instead, Mr. Seelye and other LG&E/KU witnesses point to customer-adopted solar as the problem, such as creating voltage issues, not the lack of action with updating standards for smart inverters, which LG&E/KU could propose at any time. To be clear, LG&E/KU have noted costs being caused by distributed generators in other jurisdictions that smart inverters were created to solve. LG&E/KU require these smart inverters to be installed, yet LG&E/KU have not activated these autonomous functions and faults its own customers for LG&E/KU's lack of action. The Commission will not penalize customers, through decreased compensation for distributed generation, simply because LG&E/KU is in the early stages of cost-effective DER integration.

Lastly, LG&E/KU do not appear to be prioritizing what is likely least-cost DER integration approaches. When LG&E/KU's distribution system witness was cross examined on whether he was familiar with IEEE 1547-2018, which is the basis for smart inverters providing grid services, he stated that he was "vaguely familiar."¹⁴³ The

¹⁴⁰ August 18, 2021 HVT at 11:04:15.

¹⁴¹ For smart inverters to provide grid services, autonomous grid functions must be developed and implemented at the utility or state level.

¹⁴² August 17, 2021 HVT at 3:06:01.

¹⁴³ August 17, 2021 HVT at 2:59:25.

Commission finds it concerning that LG&E/KU point to other states with extremely high DER penetrations to reference the costs caused, while LG&E/KU appear unfamiliar with ways to address the costs caused by DERs on their own systems. Other states have found activating smart inverters to be cost effective processes.¹⁴⁴ The Commission cannot conclude that LG&E/KU's methods for examining the costs and benefits of distributed generation is reasonable when theirs are not keenly aware of, nor implementing, cost-effective solutions to integrate these system resources. Only once LG&E/KU have demonstrated sufficient aptitude at integrating DERs can the Commission conclude that LG&E/KU understand the benefits well enough to articulate methods for their valuation.

As demonstrated in this section, LG&E/KU's inexperience with DER integration necessarily affects their NMS 2 rate proposal. Because LG&E/KU are still learning how to integrate DERs into the power system and unlock value for customers, many of the methodologies LG&E/KU identified for calculating avoided costs do not appear to be reflective of the Companies' own power system. LG&E/KU's positions appear to favor investment-intensive draconian solutions to issues that are better addressed through cost-effective enablement of smart inverter functionality -- a technology that LG&E/KU already require customers to purchase and install. These shortcomings are pervasive throughout LG&E/KU's NMS 2 proposals. Accordingly, the Commission finds that many of the arguments against certain avoided costs components to be unreasonable and unsupported, as will be discussed where relevant in the sections below.

Rate Design: Netting Periods

¹⁴⁴ August 17, 2021 HVT at 3:02:00.

Based upon the evidence of record, the Commission finds that LG&E/KU's proposed methodology for NMS 2 netting period is not fair, just and reasonable, and should be rejected. This is because LG&E/KU's proposed instantaneous credit for all energy exported on to the grid is inconsistent with the plain language of KRS 278.465(4), which provides that "net metering means the difference between" the dollar value of all electricity generated by an eligible customer-generator that is exported to the grid over a billing period and the dollar value of all electricity consumed by the eligible customer-generator over the same billing period.

Consistent with our finding in Case No. 2020-00174 and KRS 278.465(4), the Commission finds that LG&E/KU should continue to net the total energy consumed and the total energy exported by eligible customer-generators over the billing period in NMS 2 consistent with the billing period netting period establishes in NMS 1. The Commission further finds that, because the energy charge is based upon electricity consumed, the energy charge and any riders that are based on a per kWh charge should be netted against energy exported pursuant to KRS 278.465(4).

Avoided Cost Rate Calculation

Having reviewed the case record and being otherwise sufficiently advised, the Commission finds that LG&E/KU's proposed export rates based upon avoided costs as modified below reflect best practices in developing successor net metering rates, and are fair, just and reasonable.

Avoided Energy Cost: LG&E/KU based their avoided energy cost for NMS 2 customers on the avoided energy cost established for QFs, which the Commission found

above to be reasonable but insufficiently transparent given the LG&E/KU proprietary PROSYM modeling. This critique applies to the NMS 2 rate as well.

The Commission will modify LG&E/KU's proposal to base the NMS 2 avoided energy cost on the 2-year PPA (2021-2023) rate it developed for qualifying facilities under LQF and SQF for fixed-tilt solar. As identified by intervenors,¹⁴⁵ the \$0.02319/kWh that LG&E/KU proposes to offer NMS 2 customers is lower than the energy rate LG&E/KU proposed for QFs electing the 20-year rate option. Given that customer-generation is a long-term investment, which the Commission has treated as 25 years in its rate component calculations, it is reasonable to offer customer-generators the longer-term energy price rather than LG&E/KU's calculated 2-year PPA price.

Although KYSEIA's proposal¹⁴⁶ to use PJM locational marginal pricings (LMPs) to calculate the avoided energy cost would be a more transparent use of data, the approach less accurately reflects LG&E/KU's energy costs in the current proceeding.¹⁴⁷

Consistent with the generation capacity value that LG&E/KU specified for NMS 2,¹⁴⁸ the Commission approves an average of the 2022 and 2023 7-year avoided energy contract prices for distribution-connected resources as modified and described in

¹⁴⁵ Barnes August 5, 2021 Testimony at 25.

¹⁴⁶ Barnes July 13, 2021 Testimony at 7.

¹⁴⁷ Using LMPs is a transparent option that remains available for RTO member utilities, as approved in the Commission's May 14, 2021 Order in Case No. 2020-00174 at 27.

¹⁴⁸ LG&E/KU state that the "maximum avoided generation-capacity cost that should be paid to customer-generators under NMS 2 for the next two years is the average of the price that would be paid to qualifying facilities under SQF and LQF assuming a 20-year contract." Seelye July 13, 2021 Testimony at 24.

the QF section above, or \$0.02478 for LG&E and \$0.02526 for KU, as the fair, just and reasonable avoided energy costs.

Avoided Generation Capacity Cost: LG&E/KU asserted that customer-generators who supply energy to the grid should not receive an avoided capacity component for that export.¹⁴⁹ As discussed above, LG&E/KU are at the early stages of DER integration. Given the nascent stage of DER integration on LG&E/KU's system, their limited experience with emerging technologies, and inconsistency with the LG&E/KU's position with other jurisdictions, the Commission does not find LG&E/KU's argument reasonable. As the Commission found in Case No. 2020-00174,¹⁵⁰ and as argued by KYSEIA in this case, net metering customers' excess generation provide a quantifiable capacity value. As argued by KYSEIA, we see no reason to believe that there will be serious system attrition, and the Company should be sufficiently capable of forecasting non-contractual resources' contribution to the system, especially at low net metering penetrations.¹⁵¹

Despite their claim that net metering will not avoid generation capacity costs, LG&E/KU calculated what they consider to be the maximum avoided capacity cost for customer-generators. The calculation utilizes the SQF and LQF rates, which the Commission has already modified as described in the QF section above. Using the Commission's modified SQF and LQF avoided capacity rates for distribution-connected resources as inputs to LG&E/KU's average of the 2022 and 2023 7-year avoided capacity

¹⁴⁹ Seelye July 13, 2021 Testimony at 22.

¹⁵⁰ Case No. 2020-00174, May 14, 2021 Order at 31.

¹⁵¹ Barnes August 5, 2021 Testimony at 29.

contract prices, the Commission finds the fair, just and reasonable avoided generation capacity cost to be \$0.02061 for LG&E and \$0.02106 for KU.

Avoided Transmission Capacity Cost: LG&E/KU asserted that it is unlikely that net metering would result in any avoided transmission costs.¹⁵² For similar reasons noted in the avoided generation capacity section, the Commission does not find LG&E/KU's position convincing, accurate, or reasonable. KYSEIA rightly points out that the LG&E/KU and their customers can benefit from reduced transmission need by selling available transmission capacity attributable to the reduction caused by net metering customer.¹⁵³

Despite their claim that net metering will not avoid transmission costs, LG&E/KU calculated what they consider to be the maximum avoided transmission cost. One key flaw in the calculation is LG&E/KU's use of an unexplained and unjustified sales forecast to calculate the per-kWh avoided cost,¹⁵⁴ rather than relating the avoided cost to the photovoltaic kWh output that will defer it. Further, LG&E/KU's method is not used elsewhere in the United States.¹⁵⁵

¹⁵² Seelye July 13, 2021 Testimony at 25.

¹⁵³ Barnes, August 5 2021 Testimony at 36. The ability to sell spare transmission capacity is an opportunity cost. For example, if customers reduce the capacity need, or avoid the cost of capacity, it can be sold to another party.

¹⁵⁴ LG&E/KU's Response to Staff's Seventh Request, Item 22, Attachment, Avoided Transmission Capacity Cost Analysis.

¹⁵⁵ August 17, 2021 HVT at 1:16:20.

Intervening parties supported a methodology similar Minnesota's VOS study.¹⁵⁶ The Commission finds it reasonable to modify the Minnesota VOS approach¹⁵⁷ to estimate an avoided transmission capacity cost. To estimate the cost of transmission capacity, the Commission averaged LG&E/KU's joint firm point-to-point transmission service rates¹⁵⁸ over the most recent five years to find a \$/kW deferred cost of transmission, and escalated at the same rate that LG&E/KU used for distribution escalation over the 25-year lifetime of a solar resource. Finding the net present value of that deferred annual cost, annualizing the avoided cost, and dividing by expected annual solar generation yields a \$/kWh avoided transmission capacity cost. To account for the time-dependent nature of capacity benefits, the Commission discounted the \$/kWh avoided transmission cost by a measure of the effective capacity of solar. To do so, the Commission used LG&E/KU's average annual availability factor, which averages the availability of a sample solar production profile during monthly peak hours.¹⁵⁹

Based on the approach described above, the Commission finds the fair, just and reasonable avoided transmission capacity cost to be \$0.00732.

Avoided Distribution Capacity Cost: LG&E/KU asserted that it is unlikely that net metering would result in any avoided distribution costs.¹⁶⁰ For similar reasons noted in

¹⁵⁶ Supplemental Testimony of Karl Råbago (filed July 13, 2021) (Råbago July 13, 2021 Testimony) at 3–5; August 18, 2021 HVT at 7:55:33.

¹⁵⁷ The Commission simplified Minnesota's approach in several ways, including not accounting for PV degradation, not adjusting transmission capacity for losses, as there was not information in the record to support those approaches.

¹⁵⁸ LG&E/KU's Response to Commission Staff's Eighth Request for Information, Item 19.

¹⁵⁹ Sinclair July 13, 2021 Testimony, Exhibit DSS–2 at 9.

¹⁶⁰ *Id.* at 27.

the avoided generation capacity section, the Commission does not find LG&E/KU's position convincing, accurate, or reasonable. The Commission agrees with KYSEIA's criticism that LG&E/KU's argument that avoided distribution should not be compensated until there is a critical mass to avoided additional distribution is a self-fulfilling prophecy.¹⁶¹ Without an appropriate price signal, that critical mass will likely not be achieved. Each net metering customer provides a small incremental reduction to load and should be appropriately compensated.

Despite their claim that net metering will not avoid distribution costs, LG&E/KU calculated what they consider to be the maximum avoided distribution cost, using the same flawed approach it used for transmission capacity. Again, LG&E/KU use an unexplained and unjustified sales forecast¹⁶² to calculate the per-kWh avoided cost, rather than relating the avoided cost to solar output.

To calculate an appropriate avoided distribution capacity cost, the Commission will modify the Minnesota VOS¹⁶³ approach, based on intervenors' testimony.¹⁶⁴ To estimate the cost of each distribution system's capacity, the Commission utilized the most recent two years and forecasted three years of capital costs and new capacity associated with

¹⁶¹ Barnes August 5 2021, Testimony at 42.

¹⁶² LG&E/KU's Response to Staff's Seventh Request, Item 22, Attachment, Avoided Transmission Capacity Cost Analysis.

¹⁶³ The Commission simplified Minnesota's approach in several ways, including not accounting for PV degradation or including transmission losses, as there wasn't information in the record to support those approaches.

¹⁶⁴ Joint Intervenors' Response to Commission Staff's Post-Hearing Request for Information (Staff's Post-Hearing Request), Item 1, Attachments.

capacity-related distribution projects.¹⁶⁵ Deferring a distribution capital cost for the lifetime of a solar system saves LG&E/KU the amount of money it could invest at today's weighted average cost of capital to achieve the same escalated distribution cost. The annualized net present value of those savings can be divided by annual solar production to represent the value of each solar kWh. As with transmission capacity, the Commission discounted the \$/kWh avoided distribution cost by LG&E/KU's annual average solar availability factor.

Based on the approach described above, the Commission finds the fair, just and reasonable avoided distribution capacity cost to be \$0.00129 for LG&E and \$0.00185 for KU.

Avoided Ancillary Services Cost: LG&E/KU asserted that avoided ancillary service costs are zero.¹⁶⁶ Based on Mr. Seelye's testimony, LG&E/KU's method and assumptions made when determining avoided ancillary service costs were based on the false assumption that distributed generation is not required to have a smart inverter.¹⁶⁷ Mr. Seelye testified that solar with a smart inverter can provide reactive power, which is an ancillary service, and other grid services.¹⁶⁸ The Commission therefore concludes that the LG&E/KU's position is unreasonable.

¹⁶⁵ Although the Commission had requested historical and forecasted capacity-related distribution investments in Staff's Eighth Request, Items 16 and 17, the datasets LG&E/KU provided omitted 2021 data. Therefore, the Commission calculated distribution capacity cost for each utility with 2019, 2020, 2022, 2023, and 2024 data.

¹⁶⁶ Seelye August 5, 2021 Testimony at 33.

¹⁶⁷ August 18, 2021 HVT at 11:04:15.

¹⁶⁸ August 18, 2021 HVT at 11:04:15.

As an alternative to a zero avoided ancillary service cost, LG&E/KU also provided two methodologies for calculating the component. Under one of these approaches, “if the Commission concludes that an avoided generation capacity cost is appropriate,”¹⁶⁹ it could also conclude that net metering avoids certain ancillary service rates that are calculated as a percent of the companies fixed generation costs. Given that the Commission has found that some fixed generation costs are avoided, the corresponding percentage¹⁷⁰ of ancillary services costs should also be avoided. Using this methodology put forth by LG&E/KU, the Commission finds the fair, just and reasonable avoided ancillary services cost to be \$0.00082 for LG&E and \$0.00084 for KU.

Avoided Carbon Cost: LG&E/KU asserted that net metering does not avoid carbon costs because there are no laws or regulations that currently put a price on CO₂ emissions.¹⁷¹ However, LG&E/KU shall consider, weigh, and plan around the cost and intensity of carbon emissions when conducting system resource planning within their IRP.¹⁷² An IRP is a planning document developed by an electric utility and submitted for Commission review to evaluate and plan generation and system resources for a forecasted 15-year period. In accordance with 807 KAR 5:058, an IRP is conducted on a regular and recurring basis to assess whether a utility has sufficient resources to meet

¹⁶⁹ Seelye August 5, 2021 Testimony at 34.

¹⁷⁰ 1% + 1.5% + 1.5% = 4%

¹⁷¹ Seelye July 13, 2021 Testimony at 28.

¹⁷² Case No. 2018-00348, *Electronic 2018 Joint Integrated Resource Plan of Louisville Gas and Electric Company and Kentucky Utilities Company* (filed Oct. 19, 2018) (2018 LG&E/KU IRP), Volume I at 5–22 and 5–24. The record of Case No. 2018-00348 was incorporated by reference into this proceeding by Order entered June 30, 2021.

future demand with an adequate and reliable supply of electricity while satisfying all related state and federal laws and regulations.

The IRP's anticipation of climate legislation is evidence that avoiding carbon emissions impacts LG&E/KU's concerns and consideration in studying resource procurement and environmental compliance plans.¹⁷³ For these reasons, eligible net metering facilities should receive export compensation that includes an avoided carbon cost component.

In response to a data request, LG&E/KU calculated the avoided cost of carbon¹⁷⁴ using the methodology the Commission approved in Case No. 2020-00174. Using the value provided by the Companies, the Commission finds the fair, just and reasonable avoided carbon cost to be \$0.01338.¹⁷⁵

Avoided Environmental Compliance Cost: LG&E/KU asserted that "avoided environmental compliance costs are fully accounted for in the avoided energy and capacity cost components"¹⁷⁶ and that adding any additional component would double-count that value. Indeed, the PROSYM modeling used for avoided energy costs includes emission control reagents (e.g., limestone, ammonia), emission allowance costs, and an opportunity cost for lost CCR revenues.¹⁷⁷ However, it does not include compliance costs that are consistent with the Commission's May 14, 2021 Order in Case No. 2020-

¹⁷³ LG&E/KU 2018 IRP Volume I at 5–20.

¹⁷⁴ Commission Staff's Eighth Request for Information, Item 21.

¹⁷⁵ LG&E/KU's Response to Staff's Eighth Request, Item 21, Attachment, Avoided CO₂ Cost.

¹⁷⁶ Seelye July 13, 2021 Testimony at 28–29.

¹⁷⁷ Sinclair July 13, 2021 Testimony, Exhibit DSS–1 at 1.

00174,¹⁷⁸ which are coal combustion residual (CCR) and steam electric effluent limitations guidelines (ELG) compliance projects. Therefore, the Commission calculated an avoided environmental compliance cost based on CCR and ELG project costs associated with each Company's coal plant ownership, spread over an estimated level of generation, consistent with the Commission's finding in Case No. 2020-00174.

Based on the approach described above, the Commission finds the fair, just and reasonable avoided environment compliance cost to be \$0.00105 for LG&E and \$0.00397 for KU.

Jobs Benefits: As discussed above, LG&E/KU asserted that the Commission did not have the statutory authority to direct LG&E/KU to include jobs benefits as a component of the NMS 2 export rate. Intervenors argued that net metering can boost economic development and that there is reason to evaluate incremental job impacts, but rather than propose a methodology in this case, they suggest that LG&E/KU be required to evaluate job benefits and economic development as an export rate component for their next rate case filings.¹⁷⁹

The Commission has previously considered the economic benefit of rate proposals, including their ability to induce incremental job impacts.¹⁸⁰ However, without sufficient evidence on which to base a decision and with the limited penetration of eligible customer-generators in LG&E/KU service territory at this time and the record, the

¹⁷⁸ Case No. 2020-00174, May 14, 2021 Order at 35.

¹⁷⁹ Barnes July 13, 2021 Testimony at 13.

¹⁸⁰ See Administrative Case No. 327, *An Investigation into the Implementation of Economic Development Rates by Electric and Gas Utilities* (Ky. PSC Sept. 24, 1990), Order at unnumbered page 1. The Commission noted that an economic development rate, which many utilities have implemented over the decades, "is intended to stimulate the creation of new jobs and capital investment."

Commission cannot make a finding of fact regarding this issue in this proceeding. The Commission directs LG&E/KU to evaluate job benefits and economic development as an export rate component for LG&E/KU's next rate case filing.

NMS 2 Export Rates

Based on the adjustments and additions noted above, the schedule below displays the NMS 2 export rates that the Commission finds reasonable.

LG&E NMS 2 Export Rate	
Energy*	\$ 0.02478
Ancillary Services	\$ 0.00082
Generation Capacity*	\$ 0.02061
Transmission Capacity	\$ 0.00732
Distribution Capacity	\$ 0.00129
Carbon Cost	\$ 0.01338
Environmental Compliance Cost	\$ 0.00105
Jobs Benefit	\$ -
NMS 2 Price for Excess Gen	\$ 0.06924
*With losses	

KU NMS 2 Export Rate	
Energy*	\$ 0.02526
Ancillary Services	\$ 0.00084
Generation Capacity*	\$ 0.02106
Transmission Capacity	\$ 0.00732
Distribution Capacity	\$ 0.00185
Carbon cost	\$ 0.01338
Environmental Compliance Cost	\$ 0.00397
Jobs Benefit	\$ -
NMS 2 Price for Excess Gen	\$ 0.07366
*With losses	

Future Filing Requirements

As described above, the Commission has amended LG&E/KU's NMS 2 export rate calculation in several ways to better reflect the value of eligible customer-generators to the utility's power system. In future net metering tariff filings, the Commission directs LG&E/KU to explain how future distributed energy resource compensation, including net energy metering, tariffs adhere to the Commission's principles set forth above.

In future net metering tariff filings, while the Commission will not require LG&E/KU to adhere to a prescribed methodological approach, the Commission also directs LG&E/KU to: (1) explain how their proposal adheres to the principles set forth above; and (2) include in export rates, at a minimum, the cost components within the instant order. Furthermore, prioritizing simplicity for ratepayers is essential, but as penetrations grow, underlying retail rates and netting periods may increase in complexity.

NMS 2 Legacy Customers

In light of the provision established by the legislature for existing net metering customers in KRS 278.466(6), the Commission is persuaded by KYSEIA's witness' arguments that eligible customer-generators who take service under NMS 2 should have legacy protections in place. For the reasons set forth below, the Commission finds that eligible customer-generators who take service under NMS 2 should be allowed to take service under the current two-part rate structure¹⁸¹ and netting period for 25 years. As noted above, the legislature determined that there should be some allowance for customer expectation of and reliance on existing rate structures when the eligible

¹⁸¹ This legacy status is for the rate *structure* only. The Commission is not making any determination as to the appropriate rate amount, such as continuing to charge NMS 2 customers the same customer charge and kWh charges as non-participating customers.

generating facility was placed in service. This is especially so given the 25-year expected useful life of current eligible generating facilities. Legacy provisions mitigate the negative financial impact that changes in rate design may have on an eligible customer-generator who invested in an eligible generating facility. The 25-year legacy period for NMS 2 customers balances LG&E/KU's need to adapt to changing circumstances, such as increased penetration levels, with the needs of existing eligible customer-generators who made a long-term investment in eligible generating facilities.

Initiating Date for Legacy Customers per KRS 278.466(8)

Consistent with our finding in Case No. 2020-00174 and the plain language of KRS 278.466(6), we conclude that the triggering event that starts the 25-year legacy period for NMS 1 customers is the effective date of a net metering successor rate. Therefore, the Commission finds that the 25-year legacy period established in KRS 278.466(6) begins to run as of the effective date of a Commission Order establishing a net metering successor rate. Here, the effective date of NMS I is the effective date of this Order.

Status of Pending Applications

The parties raised the issue whether customers with net metering applications that were pending prior to the effective date of an Order approving NMS 2 were eligible to take service under NMS 1 or NMS 2, regardless of whether or not the facility was installed and operating by that date. The express language of KRS 278.466(6) states that customers with an "eligible electric generating facility in service prior to the effective date of the initial net metering order by the commission" are eligible to take service under the tariff in place when "the eligible customer-generator began taking net metering service." Based on the

plain language of KRS 278.466(6), the Commission finds that the eligible generating facility must be in service prior to the effective date of the Commission's approval of NMS 2 in order for the eligible customer-generator to be eligible to take service under NMS 1. Here, that date is the effective date of this Order.

Joint Ownership of Accounts

In its June 30, 2021, Order in this proceeding, the Commission expressed concern regarding LG&E/KU's process for determining when an account should be closed and a new one created, with specific concerns regarding what happens to NMS-1 and NMS 2 accumulated credits when an account is closed.

On August 26, 2021, an informal conference was held to allow the parties to this matter an opportunity to discuss the issue of joint ownership of accounts. In their post-hearing brief, LG&E/KU filed revised tariff language to address the joint ownership of accounts issue. The revised tariff language was developed in consultation with the Joint Intervenors, KYSEIA, and Attorney General and consisted of changes to the Application for Service section, NMS-1 Metering and Billing section, NMS 2 Energy Rates and Credits section, NMS-1 and NMS 2 Level 1 and 2 Applications, and the Solar Share Program terms and conditions section. The proposed changes are included as Appendix C to this Order.

The Commission commends the parties for their cooperation in coming up with a proposal that is both simple and straightforward for this complicated issue. The Commission finds that the proposed revisions included in Appendix C to this Order are reasonable and should be approved. While the above revisions put future customers on notice regarding the ramifications of forming and not forming a joint account, there is still

the issue of how to provide current customers notice of such ramifications. The Commission further finds that LG&E/KU should include notice regarding the revisions to their tariff on the issue of joint ownership of accounts in their PowerSource newsletter and on their website. The Commission also finds that within 30 days of the date of this Order, LG&E/KU should file with the Commission their recommended notice on this issue for Commission review. The Commission finds that within 45 days of the date of Commission approval of the recommended notice, LG&E/KU should include the notice in their PowerSource newsletter and on their website. Finally, the Commission finds that, within ten days of publishing the notice in PowerSource and on LG&E/KU's website, LG&E/KU should file a copy of the notice with the Commission.

IT IS THEREFORE ORDERED that:

1. The rates and charges proposed by LG&E/KU in Tariff SQF and LQF are denied.
2. The rates and charges for LG&E/KU's Tariff SQF and LQF, as set forth in Appendix A and B to this Order, are fair, just and reasonable rates, and these rates are approved for service rendered on and after the date of entry of this Order.
3. The proposed revisions to Solar Share Program Rider Tariff and the Green Tariff Rider are approved.
4. The rates and charges proposed by LG&E/KU in Tariff NMS 2 are denied.
5. The rates and charges for LG&E/KU's Tariff NMS 2, as set forth in Appendix A and B to this Order, are fair, just and reasonable rates, and these rates are approved for service rendered on and after the date of entry of this Order.
6. LG&E/KU's Tariff NMS 2 shall be modified as described in this Order.

7. LG&E/KU's Tariff NMS 1 is approved.
8. LG&E/KU's proposed tariff revisions contained in Appendix C to this Order are approved.
9. Within 90 days of the date of entry of this Order, LG&E/KU shall submit a filing that details how LG&E/KU will increase the transparency of their PROSYM modeling to the Commission.
10. Within 90 days of the date of entry of this Order, LG&E/KU shall submit a filing that explains how non-fuel O&M costs are determined to be variable and fixed costs.
11. Within 30 days of the date of this Order, LG&E/KU shall file with the Commission their recommended notice on the joint account issue.
12. Within 45 days of the date of Commission approval of LG&E/KU's recommended notice on the joint account issue, LG&E/KU shall include the notice in their PowerSource newsletter and on their website, www.lge-ku.com.
13. Within ten days of publishing the notice in PowerSource newsletter and on LG&E/KU's website, LG&E/KU shall file a copy of the notice with the Commission.
14. Documents filed pursuant to ordering paragraphs 9, 10, 11, 12, and 13 shall be filed in the post-case correspondence file and include this case number.
15. Within 20 days of the date of this Order, LG&E/KU shall file with the Commission, using the Commission's electronic Tariff Filing System, new tariff sheets setting forth the rates, charges, and modifications approved or as required herein and reflecting their effective date and that they were authorized by this Order.
16. This case will remain open pending the final determination on matters for which LG&E/KU were granted rehearing by Order entered August 12, 2021.

By the Commission

Commissioner Marianne Butler did not participate in the deliberations or decision concerning this case.



ATTEST:


Executive Director

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

APPENDIX A

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NO. 2020-00349 DATED SEP 24 2021

The following rates and charges are prescribed for the customers in the area served by Kentucky Utilities. All other rates and charges not specifically mentioned herein shall remain the same as those in effect under the authority of this Commission prior to the effective date of this Order.

TARIFF NMS-2
NET METERING SERVICE -2

All excess customer generation, accumulated for the billing period, shall be credited for each month.

Residential \$0.07366 per kWh

TARIFFS SQF AND LGF
SMALL AND LARGE QUALIFYING FACILITY

Qualifying Facility Avoided Energy Rates for Transmission Connected Projects, without Line Losses

	QF Avoided Energy (without line losses for transmission connected projects)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$22.94	\$23.85	\$23.92
Solar: Fixed Tilt	\$23.19	\$24.07	\$24.14
Wind	\$22.51	\$23.71	\$23.83
Other	\$22.04	\$22.98	\$23.07

Qualifying Facility Avoided Capacity Rates for Transmission Connected Projects, without Line Losses

	QF Avoided Capacity, 2025 Need (without line losses for transmission connected projects)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$0.00	\$15.61	\$17.29
Solar: Fixed Tilt	\$0.00	\$18.78	\$20.79
Wind	\$0.00	\$12.31	\$13.64

Other	\$0.00	\$10.89	\$12.06
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Qualifying Facility Avoided Cost Rates for Transmission Connected Projects, without Line Losses

	QF All-In Avoided Cost Rates (without line losses for transmission connected projects)	
	2-Year PPA	2022/2023 Avoided Cost Rate
Solar: Single-Axis Tracking	\$22.94	\$40.34
Solar: Fixed Tilt	\$23.19	\$43.89
Wind	\$22.51	\$36.74
Other	\$22.04	\$34.50

Qualifying Facility Avoided Energy Rates, with Line Losses

	QF Avoided Energy, KU (with line losses)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$24.03	\$24.98	\$25.06
Solar: Fixed Tilt	\$24.29	\$25.22	\$25.29
Wind	\$23.58	\$24.84	\$24.96
Other	\$23.08	\$24.08	\$24.17

Qualifying Facility Avoided Capacity Rates, with Line Losses

	QF Avoided Capacity, 2025 Need, KU (with line losses)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$0.00	\$16.62	\$18.40
Solar: Fixed Tilt	\$0.00	\$19.99	\$22.13
Wind	\$0.00	\$13.11	\$14.51
Other	\$0.00	\$11.59	\$12.83

Qualifying Facility All-In Avoided Cost Rates for 2-Year and 7-Year Contracts, with Line Losses

	QF All-In Avoided Cost Rate KU	
	2-Year PPA	2022/2023 Avoided Cost rate

Solar: Single-Axis Tracking	\$24.03	\$42.53
Solar: Fixed Tilt	\$24.29	\$46.31
Wind	\$23.58	\$38.71
Other	\$23.08	\$36.34

Rates for energy purchases from seller on an as-available basis are based upon the applicable 2-year PPA.

APPENDIX B

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NO. 2020-00350 DATED SEP 24 2021

The following rates and charges are prescribed for the customers in the area served by Louisville Gas and Electric. All other rates and charges not specifically mentioned herein shall remain the same as those in effect under the authority of this Commission prior to the effective date of this Order.

TARIFF NMS-2
NET METERING SERVICE -2

All excess customer generation, accumulated for the billing period, shall be credited for each month.

Residential \$0.06924 per kWh

TARIFFS SQF AND LGF
SMALL AND LARGE QUALIFYING FACILITY

Qualifying Facility Avoided Energy Rates for Transmission Connected Projects, without Line Losses

	QF Avoided Energy (without line losses for transmission connected projects)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$22.94	\$23.85	\$23.92
Solar: Fixed Tilt	\$23.19	\$24.07	\$24.14
Wind	\$22.51	\$23.71	\$23.83
Other	\$22.04	\$22.98	\$23.07

Qualifying Facility Avoided Capacity Rates for Transmission Connected Projects, without Line Losses

	QF Avoided Capacity, 2025 Need (without line losses for transmission connected projects)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$0.00	\$15.61	\$17.29
Solar: Fixed Tilt	\$0.00	\$18.78	\$20.79
Wind	\$0.00	\$12.31	\$13.64
Other	\$0.00	\$10.89	\$12.06

Qualifying Facility Avoided Cost Rates for Transmission Connected Projects, without Line Losses

	QF All-In Avoided Cost Rates (without line losses for transmission connected projects)	
	2-Year PPA	2022/2023 Avoided Cost Rate
Solar: Single-Axis Tracking	\$22.94	\$40.34
Solar: Fixed Tilt	\$23.19	\$43.89
Wind	\$22.51	\$36.74
Other	\$22.04	\$34.50

Qualifying Facility Avoided Energy Rates, with Line Losses

	QF Avoided Energy, LG&E (with line losses)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$23.57	\$24.51	\$24.58
Solar: Fixed Tilt	\$23.83	\$24.74	\$24.81
Wind	\$23.14	\$24.37	\$24.49
Other	\$22.65	\$23.62	\$23.71

Qualifying Facility Avoided Capacity Rates, with Line Losses

	QF Avoided Capacity, LG&E (with line losses)		
	2-Year PPA	2022	2023
Solar: Single-Axis Tracking	\$0.00	\$16.26	\$18.01
Solar: Fixed Tilt	\$0.00	\$19.56	\$21.65
Wind	\$0.00	\$12.82	\$14.20
Other	\$0.00	\$11.34	\$12.56

Qualifying Facility All-In Avoided Cost Rates for 2-Year and 7-Year Contracts, with Line Losses

	QF All-In Avoided Cost Rate LG&E	
	2-Year PPA	2022/2023 Avoided Cost rate

Solar: Single-Axis Tracking	\$23.57	\$41.68
Solar: Fixed Tilt	\$23.83	\$45.38
Wind	\$23.14	\$37.94
Other	\$22.65	\$35.62

Rates for energy purchases from seller on an as-available basis are based upon the applicable 2-year PPA.

APPENDIX C

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NOS. 2020-00349 AND 2020-00350 DATED SEP 24 2021

JOINT ACCOUNT TARIFF CHANGES

TWO PAGES TO FOLLOW

Application for Service (Page 97)

All applications for service shall be made in the legal name of the party desiring service. At the request of such party, additional parties may be added to the account to form a joint account (collectively, such parties are “joint account holders”). In such instances, each joint account holder shall bear responsibility for payment for services.

Net Metering NMS-1 (page 57), Metering and Billing

Any ~~such~~ unused excess billing-period credits will be carried forward and drawn on by Customer as needed.

Unused excess billing-period credits existing at the time Customer’s service is terminated end with Customer’s account and are not transferable between Customers or locations. For joint accounts, unused excess billing period credits will be carried forward as long as at least one joint account holder remains in the same location.

Net Metering NMS-2 (page 58), Energy Rates & Credits

Any bill credits not applied to a Customer’s bill in a billing period are “unused excess billing-period credits.” Any bill credits greater than the Customer’s total bill unused excess billing-period credits will be carried forward to future bills and drawn on by Customer as needed.

Unused excess billing-period credits existing at the time Customer’s service is terminated, end with Customer’s account, ~~have no monetary value,~~ and are not transferrable between Customers or locations. For joint accounts, unused excess billing-period credits will be carried forward as long as at least one joint account holder remains in the same location.

Net Metering Level 1 Application, Application for Interconnection and Net Metering

Use this application form only for a generating facility that is inverter based and certified by a nationally recognized testing laboratory to meet the requirements of UL 1741. Note: For joint accounts unused excess billing-period credits carry forward from one to another customer only among joint account holders at the same premise.

Net Metering Level 2 Application, Application for Interconnection and Net Metering

Use this application form when a generating facility is not inverter-based or is not certified by a nationally recognized testing laboratory to meet the requirements of UL 1741 or does not meet any of the additional conditions under Level 1. Note: For joint accounts unused excess billing-period credits carry forward from one to another customer only among joint account holders at the same premise.

Solar Share (page 72.2), Terms and Conditions #7

Unused Solar Energy Credit value is not transferrable between customers or customer accounts. Therefore, a Subscriber's closing a customer account terminates any unused Solar Energy Credit value associated with that account. For joint accounts, unused Solar Energy Credit value will be carried forward as long as at least one joint account holder remains.

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