COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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

AND

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

SUPPLEMENTAL POST-HEARING BRIEF OF JOINT INTERVENORS

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PROCEDURAL BACKGROUND

On May 3, 2021, the Public Service Commission ("Commission") entered an Order directing that "[a]ll parties shall file a memorandum brief in support of their respective post-hearing positions on or before May 24, 2021. Those briefs were to address the proposed *Stipulation And Settlement* as well as "each party's position as to the cogeneration tariff and net metering issues even though those issues will remain the subject of additional proceedings." The Commission Order further noted that the issues pertaining to the cogeneration tariff and net metering issues (Riders NMS-1 and NMS-2) which will be the subject of additional discovery and potentially a second hearing."

On June 30, 2021, the Commission entered Orders in Case Nos. 2020-00349 and 2020-00350 which, in relevant part, were identical. For the purposes of this *Background,* citations shall be made to the June 30, 2021 *Order* in Case No. 2020-00350.

In those June 30, 2021 Orders, the Commission deferred final action on the net-metering and the cogeneration tariff issues but made certain findings and preliminary conclusions that bear on the final review and either approval or disapproval of the NMS-2 Tariffs proposed by Louisville Gas & Electric Company ("LG&E") and Kentucky Utilities Company ("KU"). Among those determinations were these:

- "The Commission notes that LG&E has already or anticipates spending tens-of-millions of dollars on advanced distribution management solutions (ADMS), Distributed Energy Resource Management Systems (DERMS) (even though the penetration of resources on the LG&E system is miniscule), SCADA and SCADA-related distribution investments, and Distribution Automation and Volt/Var Optimization, all in addition to the proposed AMI project. A primary purpose of much of this investment is to accommodate a dynamic distribution system, particularly one with increasing penetrations of distributed resources. Additionally, the basis for some of these investments, such as voltage regulation, can be accomplished by other means like distributed resources. To ignore the impact or benefit of these investments, or alternatives to these investments, in determining the NMS-2 export compensation rate is unreasonable. Because that is what LG&E is doing in this matter, the Commission questions whether additional scrutiny or

investigation of LG&E's investment in 'smart grid' technology may be necessary." *Order,* June 30, 2021, p. 36.[1]

- That based on the plain language of KRS 278.466(6) an 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 take service under NMS-1. *Order*, *supra,* p. 40-42.

- That the proposed substantive changes to the Net Metering Service Interconnection Guidelines that LG&E and KU had proposed in Case Nos. 2020-00349 and 2020-00350 would be denied and that, in order to avoid piecemeal changes to Interconnection Guidelines that are applicable to are to be "standardized and aligned across all jurisdictional electric utilities," LG&E and KU should raise their proposed revisions to the Interconnection Guidelines as issued to be determined in Case No. 2020-00302. *Id.*

- That with respect to the proposal by LG&E and KU ("the Companies") to remove their one-page net metering service application forms from the tariff in order to reduce the size of the tariff, and to file any future changes with the Commission in the pending administrative case concerning net metering guidelines, the proposal should be rejected because "future revisions to the application forms could receive a more thorough review through revisions to the tariff than through just filing them into the post-case file of an administrative case." *Order, supra* at p. 44.

- With respect to transferring, closing, or creating a new account in the context of NMS-1 and NMS-2 and the availability of accumulated bill credits for fed-back electricity, the Commission expressed concern "about the fairness of LG&E's process for determining when an account should be closed and a new one created," and indicated that the issue would be further investigated "during the continuance of this proceeding and will review the impact of the condition of service on all customers." *Order, supra* at pp. 44-45. An informal conference was conducted, and the participating parties agreed on revisions to certain tariff language intended to address these issues. Joint Intervenors will address their support for the consensus language *infra.*

- Finally, with respect to question of the appropriate compensatory credit rate for net-metered electricity supplied to the grid, the Commission expressed concern that the record was insufficient, and requested that the record be supplemented in order to provide evidence sufficient to determine whether the Companies-proposed NMS-2 compensation rate was "fair, just and reasonable" and if not, to allow the Commission to "determine the appropriate compensation rate for net metering." The Commission made these observations:

[1] Joint Intervenors encourage the Commission to conduct further investigation into such investments, since it is abundantly clear from the manner in which the Companies have attempted to devalue and discourage distributed generation through net metering that the companies have not accepted the Commission principle that such additions to the grid are opportunities to be explored in a transparent and consistent manner rather than a burden.

The record does not offer quantification from LG&E or from the Intervenors for several compensation rate components that the Commission considers are necessary to adequately compensate NMS-2 customers. As the law clearly requires, following the initiation of this proceeding by LG&E, it is the Commission's obligation to determine the appropriate compensation rate for net metering. Therefore, the Commission finds that the existing record is insufficient to support a conclusion whether the proposed NMS-2 export compensation rate is fair, just and reasonable.

For example, the record is deficient on generation capacity value and additional analysis regarding the existence and value of avoided generation capacity costs from customer-generators is required. LG&E did not provide avoided generation capacity cost in the proposed NMS-2 export compensation rate, arguing that LG&E does not have legally enforceable dispatch rights to renewable distributed generating facilities and, therefore, distributed generation yields no appreciable savings in generation fixed costs. In LG&E's 2018 integrated resource plan (IRP), it indicated a likely need for capacity, potentially as early as 2026.

In this proceeding, when discussing how an avoided KRS 278.466(3) capacity value could be calculated, LG&E indicated that a significant amount of data and analysis would be needed to make such a calculation. Critically, LG&E did not explain how it could have determined that there is no avoided generation capacity value without a similarly rigorous, data-driven analysis as it has proposed for avoided capacity cost. The Commission notes that the Intervenors did not provide a specific generation capacity value either.

The Commission recently approved a net metering successor rate for Kentucky Power that proposed a methodology for calculating generation capacity value. The approved net metering successor rate in that case quantified the following avoided-cost elements: energy, ancillary services, generation capacity, transmission capacity, distribution capacity, carbon cost, and environmental compliance cost. Additionally, Kentucky Power will file specific information pertaining to a job benefit value in the next net metering case filed by the utility.

In the Kentucky Power case, the Commission articulated its desire for more evidence to take under consideration, including testimony, fact evidence, and analysis:

> [A]n intervening party's failure to provide evidence regarding an issue does not equate to a shifting of the burden of proof, nor is it the case that a utility has met its burden of proof when the utility's evidence is the only evidence in the record. When a utility meets it burden of proof, an intervening party has the opportunity, but not the requirement, to rebut the utility's proof through evidence. When a party does not file certain evidence into a case record, the Commission typically makes note of

> that in an order to be thorough and avoid the misperception that a party's argument has been omitted. Here, due to the novelty of establishing successor net metering rates, the Commission would have welcomed if the intervening parties had shared their expertise and experience in quantifying certain evidence, but we emphasize that the intervening parties did not have an affirmative obligation to do so.
>
> We reiterate here that, while the Intervenors do not have the burden of proof on the net metering successor rate, the Commission granted the parties' requests for permissive intervention in this proceeding so that they could present issues and develop facts that assist the Commission in rendering its decision. We encourage the parties that were granted permissive intervention to draw upon their expertise to quantify issues they present and facts they develop to assist the Commission to the greatest degree possible.
>
> Because the record is insufficient to support a finding that the NMS-2 export compensation rate is fair, just and reasonable, the Commission finds that a decision regarding NMS-1 and NMS-2 should be deferred to afford the parties the opportunity to develop a thorough, robust record with sufficient evidence to support a finding that LG&E's proposed Tariff NMS-2 rates are fair, just and reasonable.
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> The Commission is cognizant that it must issue a decision on this issue on or before September 24, 2021, which is the statutory due date established by KRS 278.190(3), and will timely establish a procedural schedule for investigating NMS-1 and NMS-2. The procedural schedule will consist of supplemental information requests, supplemental testimony, supplemental rebuttal, and a hearing. Parties are advised to submit supplemental testimony related to avoided energy cost, ancillary services cost, generation capacity cost, transmission capacity cost, distribution capacity cost, carbon cost, environmental compliance cost, and, separately, job benefits as they relate to calculating the NMS-2 export compensation rates.

June 30, 2021 *Order* Case No. 2020-00350, pp. 37-39.

On June 30, 2021, the Commission also entered an Order setting a procedural schedule to review the "reasonableness of the Tariffs Net Metering Service-1, Net Metering Service-2, Small Capacity Cogeneration Qualifying Facilities, and Large Capacity Cogeneration Qualifying Facilities proposed by Kentucky Utilities Company and Louisville Gas and Electric Company (LG&E/KU)."

In that June 30, 2021 *Order,* the Commission noted that "[r]egarding the supplemental testimony to be filed, parties are advised to submit supplemental testimony related to avoided energy cost, ancillary services cost, generation capacity cost, transmission capacity cost, distribution capacity cost, carbon cost, environmental compliance cost, and job benefits as they relate to calculating the NMS-2 export compensation rates."

After the supplemental filing of simultaneous testimony on July 13, 2021, supplemental requests for information, and simultaneous rebuttal testimony on August 5, 2021, a two-day supplemental hearing was held on August 17 and 18, 2021. Pursuant to the procedural schedule established at the close of that hearing, simultaneous supplemental briefs are to be filed today, September 7, 2021.

INTRODUCTION

Joint Intervenors Mountain Association ("MA"), Kentuckians For The Commonwealth ("KFTC"), and the Kentucky Solar Energy Society ("KYSES") in Case No. 2020-00349, and KFTC, KYSES and the Metropolitan Housing Coalition ("MHC") in Case No. 2020-00350, (hereinafter "Joint Intervenors") file this supplemental post-hearing brief in response to the June 30, 2021 Commission Order inviting such briefing with respect to the cogeneration tariff and net metering. This brief supplements the previous post-hearing and reply briefs submitted by Joint Intervenors.

For the reasons outlined below and in past briefing, Joint Intervenors respectfully request that the Commission reject the proposed Net Metering II tariff as unjust, unreasonable, unfair, and unsupported in law or in fact. Joint Intervenors respectfully request, in light of the Commission's May 14, 2021 Order in the case of *In the Matter Of: 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, Case No. 2020-00174 ("May 14, 2021 KPC NMS Order*")*, the June 30, 2021 Order entered by the Commission in this case, and on the record in this case presented by Joint Intervenors and Intervenor Kentucky Solar Industries Association ("KYSEIA") that the net metering tariff proposed by Louisville Gas & Electric Company and Kentucky Utilities Company, ("LGE/KU") be rejected and that a more reasonable and fair compensatory credit rate be established applying to excess generation over a billing period after netting generation and consumption during that billing period.

I. ISSUES ADDRESSED IN THIS SUPPLEMENTAL POST-HEARING BRIEF

As noted above, the Commission's June 30, 2021 *Order* scheduling the supplemental proceedings specifically requested further evidence and briefing concerning several specific issues related to the determination of a fair, just, and reasonable compensatory credit rate for electricity that is "fed back" into the grid by eligible customer-generators under a net-metering tariff.

Joint Intervenors first address two threshold issues that are important to the calculation of a fair, just, and reasonable compensatory credit rate for fed-back electricity from net-metering customers. The first issue is the "apples to oranges" comparison between the relationship under PURPA of a qualifying facility generating electricity at wholesale to the incumbent utility; and the wholly distinct relationship of a retail electric customer incidentally generating electricity in excess of consumption and the utility receiving and crediting that excess generation. The second issue is the appropriate approach and period for "netting" electricity fed into the grid and that

consumed by the eligible customer-generator, and addresses why the instantaneous approach of the Companies is inconsistent with Kentucky law.

Beyond these threshold issues, the Commission requested additional evidence and briefing on these component cost savings and benefits (i.e. costs-avoided) as they "related to calculating the NMS-2 export compensation rates:" avoided energy cost, ancillary services cost, generation capacity cost, transmission capacity cost, distribution capacity cost, carbon cost, environmental compliance cost, and job benefits. June 30, 2021 *Order*, pp. 39-40.

In presenting such testimony and briefing, the Commission encouraged the permissive Intervenors (including *sub nom* Joint Intervenors) "to draw upon their expertise to quantify issues they present and facts they develop to assist the Commission to the greatest degree possible." *Id.* p. 39.

In addition to those specific costs avoided by the addition of net-metered electricity, the Commission requested at the conclusion of the supplemental hearing, that the parties brief the applicability of the PURPA regulation and of the compliance of the proposed QF tariff supported by the parties, with PURPA and the regulations implementing that Act.

After all is said and done, LG&E and KU have erected a castle of sand where with no foundation two fundamentally dissimilar relationships (i.e. those of retail net metering customer to utility and that of a QF to a utility) are argued to be equivalent, and in which the power of this Commission to determine the "fair, just, and reasonable" compensatory rate for fed-back solar from a net-metering customer is somehow constrained by a federal law that in no fashion governs that retail customer – utility relationship nor limits the Commission's plenary authority to determine what is "fair, just' and reasonable."

For the reasons set forth below, and on the strength of the testimony, responses to data requests, and previous briefing presented by Joint Intervenors, KYSEIA, and Sierra Club, Joint Intervenors respectfully request that the proposed valuation and terms of NMS-2 be rejected, and that where specific data is not available reflecting reasonable values for the cost components outlined below, that the methodology outlined in the May 14, 2021 KPC NMS Order be applied to determine the appropriate compensatory credit rate, and that in the absence of data-based and fair assessment of benefits and avoided costs, the robust VOS methodology adopted in the Minnesota proceeding and the range of values reflected in the *Hayibo and Pearce* meta-analyses, be utilized to calculate a fair compensatory credit rate that considers the full range of benefits and costs.

II. WHILE PURPORTING TO ADDRESS ALL BUT ONE OF THE IDENTIFIED COSTS AVOIDED BY THE ADDITION OF NET-METERING CUSTOMERS TO A UTILITY SYSTEM, THE COMPANIES FAILED TO CONFORM THEIR PROPOSED TARIFF DEVELOPMENT TO THE PRINCIPLES ESTABLISHED IN THE MAY 14, 2021 KPC NMS ORDER

In the May 14, 2021 *Order* in Case # 2020-00174, the Commission established a set of "Principles for Compensation for Eligible Customer-Generators" and identified several categories of avoided costs which are to be used for determining a fair compensation rate for customer generation. Those principles are that:

- The benefits of incorporation of net-metered electricity should be compared with other energy resources using consistent methods, processes, and assumptions.
- Costs and benefits of the resource should be weighed symmetrically.
- The analysis should be forward-looking, long-term, and incremental, ensuring unbiased evaluation of system resources, ensuring ratepayers are paying fair value for avoided future costs, and compensating eligible customer-generators fairly.

- Double counting certain benefits or costs more than once if they fall into multiple categories of benefit or cost, should be avoided. All impacts should therefore be clearly defined and carefully quantified.
- Ensuring transparency is a key principle. 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.

May 14, 2021 *Order*, Case No. 2020-00174, at pp. 21-23.

The Commission then directed all jurisdictional utilities to apply these principles and avoided cost methodology in proposing new compensation rates for exports from customer-generators.

In their quest to discount any values that would interfere with the goal of arriving at the same point as they had initially proposed, (i.e. "avoided cost" as defined under PURPA), the Companies have purported to address the cost avoidance components identified by the Commission while ignoring the Commission's principles and the methodology outlined in the KPC case for calculating net metering compensation rates.

With respect to the principle of evaluating eligible generating facilities as a utility system or supply side resource rather than a burden, the Companies have failed completely. With regards to avoided transmission and distribution system costs, the Companies have failed to provide a credible analysis. In contrast with other supply-side resources, such as Demand Side Management, in which a rigorous benefit-cost analysis is applied to determine what are cost-effective non-wires strategies to be employed, the Company witness Conroy acknowledged that no such benefit-cost analysis had been conducted with respect to net-metered generation and its potential value as a system resource. The Companies have failed to assess the value of

customer-owned generation in a manner consonant with consideration of DSM measures in their IRP.

It is apparent from the attitude expressed in the unfounded and offensive Conroy testimony questioning the Joint Intervenors' motivations, that the Companies are unwilling to concede that the addition of net-metered renewable electricity to the grid, properly valued, is the reasonable least cost resource.

With respect to the Commission's principle that benefits and costs should be treated symmetrically, the Companies have again failed to conform to that principle.

Nor have the Companies conducted forward-looking, long-term, and incremental analysis. With regards to the avoided costs of capacity, transmission, distribution, carbon, environmental compliance, and jobs impacts, the Companies have focused narrowly on their system as it exists today and failed to account for potential and likely future scenarios. Their treatment of avoided generation capacity is a prime example. At the same time that the Company is soliciting proposals for up to 900 MW of new capacity (including renewables) to come online by 2025 (if not earlier), they argue that net metering has no capacity value because the Company has excess generation capacity today.

The asymmetrical treatment of carbon costs is another example of the failure to conduct forward-looking, long-term, and incremental analysis. Despite the fact that the Companies' 2018 IRP evaluated a scenario that included an escalating carbon price; despite the growing public concern about climate change, despite the Biden Administration's announced commitment to take action to dramatically reduce carbon emissions; despite the Commission determination in the Kentucky Power Company net metering case (2020-00174) that a value for avoided carbon cost should be included; despite a commitment adopted by the Metro Louisville Council

concerning decarbonization; and despite the Companies having a generation fleet that is projected to still be emitting over 12 million tons of CO2e in 2050; the Companies performed no analysis and assigned no value to the emissions reductions offered by customer-generation. The Companies failed abjectly to perform a forward-looking, long-term analysis of avoided carbon costs.

Nor have the Companies ensured transparency in their calculation of a compensatory credit rate. At numerous junctures, the Companies have failed to provide transparency in their determinations, substituting arguments *ad hominem*[2] and groundless opinions offered as fact, in an unrelenting effort to discount the value of solar:

- Witness Sinclair's claim that neighbors pay for their solar neighbors' PV systems is factually incorrect and without basis yet served to cast net metering customers as taking advantage of their neighbors.
- Witness Conroy's testimony that SQF projects in Kentucky are owned by "hedge funds" was shown to be based on no evidence under cross examination. Yet again, this mischaracterization of the owners of solar facilities was obviously intended to paint these customers in a negative light, with the implication that "out-of-state rich people" are taking advantage of Kentuckians. Mr. Miller from the Sierra Club made the point that the Companies themselves are owned by investment funds and other "out-of-state" shareholders who profit off the Companies' customers.

[2] Nor is it helpful to one's argument to imply improper motive through *ad hominem* labels like "interest group," as did the AG and KIUC. KIUC is, of course, an "interest group," yet it is only those seeking to assure fair treatment of both participating and non-participating ratepayers who have been subject to disparagement in this proceeding.

- Witness Conroy's baseless suggestion that Joint Intervenors are motivated by financial ties to small-scale solar generation; a ploy obviously intended to cast aspersions on the testimony presented by experts employed by the Joint Intervenors.
- In Witness Seelye's testimony criticizing Witness Barnes' proposed method for calculating the avoided capacity cost, he argued that Net CONE is an insignificant factor in the PJM market. Under questioning from Commissioner Chandler, however, who described specific ways in which Net CONE plays an important and significant role in the PJM market, Mr. Seelye acknowledged the importance of Net CONE and that he exaggerated its insignificance.

In sum, the Companies' proposed NMS-2 Tariff fails to adhere, in spirit or in substance, to the principles and methodology adopted by the Commission in the May 14, 2021 KPC NMS *Order* and should be rejected for such failure.

Finally, the Companies claim that DER's offer zero benefits to the distribution and transmission systems but have offered insufficient data to support this claim. At the August 17-18 hearing, they asserted that rooftop solar would actually increase costs on the distribution system, but when asked to substantiate this claim with evidence, they referenced conversations with employees at other utilities and among LG&E-KU employees.

III. THE ELECTRICITY FED-BACK TO THE GRID AND THAT CONSUMED BY THE CUSTOMER SHOULD BE "NETTED" OVER THE BILLING PERIOD PRIOR TO APPLICATION OF THE NEW COMPENSATORY RATE FOR ANY EXCESS ELECTRICITY PRODUCED OVER THE BILLING PERIOD

A threshold issue for Commission consideration and determination is whether the Companies' proposal to replace the netting of electricity generated and consumed over a billing period, with a two-channel approach that no longer "nets" production and consumption but instead assigns An instantaneous lower credit value to *all* fed-back electricity, is consistent with the underlying

statute. Joint Intervenors believe that the approach proposed by the Companies is fundamentally inconsistent with the governing statutes and eliminates the concept of "net metering."

Prior to the enactment of Senate Bill 100 (SB 100) by the General Assembly during the 2019 Regular Session, "net metering" was defined KRS 278.465(4) in this manner:

> (4) "Net metering" means the difference between the electricity supplied by the electric grid and the electricity generated by an eligible customer-generator that is fed back to the electric grid over a billing period.

The electricity generated and fed through the meter to the grid by the eligible customer-generator, measured volumetrically and tallied in kWh, was offset by the consumption of electricity through the meter from the grid "over a billing period" and only the excess over consumption was credited, and any deficit was billed after the netting. After such "netting" of consumption and generation over the billing period, the customer would receive a bill for the difference between electricity generated and electricity consumed *during* that billing period, or a credit that would carry forward and apply to offset future consumption.

The revised definition of "net metering" in KRS 278.465(4) changed the manner in which the credit of generation over use would be denominated (from a kWh to a dollar-denominated credit) but did <u>not</u> change the essence of net metering, which is the netting of generation and consumption over the course of the billing period.[3]

Had the General Assembly intended to eliminate the concept of "netting" generation and consumption over the billing period, it would have so provided, eliminating "over a billing period" and instead amending the law to read that the "dollar value of all electricity generated by an eligible customer-generator that is fed back to the electric grid and priced as prescribed in

[3] For ease of reference, a copy of SB 100 as enacted is attached to this *Supplemental Post-Hearing Brief of Joint Intervenors.*

Section 2 of this Act." It did not do so, and the Companies cannot selectively ignore the phrase to convert billing-period netting into an instantaneous valuation of all fed-in electricity.

The continued use of the phrase "over a billing period" by the General Assembly in SB 100 demands that the usage and generation first be netted to determine how much, if any, electricity was "generated by an eligible customer-generator" that was "fed back to the electric grid over a billing period." If consumption exceeded generation during that billing cycle, then there is no electricity generated and fed back over that period, but instead, a net consumption that under SB 100 would be billed at the retail electric rate. Application of the new dollar-denominated credit to represent the volumetric generation over consumption in the place of a kilowatt-denominated credit does not change the "netting" but rather may affect the value of the excess generation that is credited.

Joint Intervenors encourage the Commission to apply "net metering" as it was and remains defined in KRS 278.465(4) – as the crediting (now "dollar-denominated") of that generation over a billing period in excess of consumption during that same billing period.

IV. THE RELATIONSHIP OF A RETAIL NET-METERING RATEPAYER TO THE RESIDENT UTILITY IS NEITHER GOVERNED BY NOR COMPARABLE TO THE RELATIONSHIP BETWEEN A QUALIFYING FACILITY GENERATING ELECTRICITY FOR SALE IN THE WHOLESALE MARKET WITH THE INCUMBENT UTILITY

Throughout these proceedings, the Companies have not varied from what has become their mantra and what is their fundamental legal and conceptual error – that the relationship between a net-metering retail ratepayer and the utility is equivalent to, and should be constrained by the federal and state rules applicable to, the relationship between a wholesale qualifying facility (QF)

under the Public Utility Regulatory Policies Act of 1978 ("PURPA") and the utility with which that QF connects.

Company witnesses acknowledged, grudgingly, that neither PURPA nor the Commission's regulation adopted pursuant to that federal law, 807 KAR 5:054, applies to the relationship between a retail electric customer that is taking service under the net metering tariff of a PSC-regulated electric utility, and that utility. Yet the *gravamen* of the prefiled and hearing testimony of witnesses for the Companies is that the definition of "avoided cost" under regulations adopted pursuant to PURPA, and adopted in 807 KAR 5:054, should constrain the Commission's determination of what terms and conditions in a net metering tariff (including the compensatory credit rate) are "fair, just' and reasonable." The Companies essentially seek to federalize retail net metering in Kentucky and preempt the Commission from fully and fairly considering all the public interest issues raised by and full range of costs avoided by the addition of distributed generation (" DG") to the utility grid. Yet the determination of benefits and full range of costs avoided are properly within the regulatory purview of the individual states as sovereign entities, unencumbered by PURPA or the Federal Power Act. This Commission is charged under Kentucky law to determine what rates are fair, just, and reasonable.

As noted in the rebuttal testimony of witness Rábago, the false equivalence of treating retail net-metering customer generation as if it were just a form of wholesale utility-scale generation, infects all of the analyses and conclusions undergirding the NMS-2 Tariff.

> First, the Companies commit a category error by continuing to propose to treat distributed customer generation the same as wholesale utility-scale generation. The utilities continue to propose treating generation for use in the same manner as generation for sale for resale. This proposed limitation does not appear in the Kentucky net metering statute.[4] The utilities continue to presume that customer generation exports, which are incidental to production for use, have little or no value because they are small, not addressed in

[4] Ky. Rev. Stat. § 278.466(3).

> wholesale contracts or tariffs, or are ignored and unmeasured by the utilities. The utilities continue to ignore the fact that customer generation produces energy that offsets full retail sales by the owner customer and injects or exports excess energy at a time and place such that it is immediately used by the other load in the nearby grid. The utilities continue to ignore that excess net metered generation gives rise to bill charges when it passes through the meter to serve that nearby load, yielding full retail value for the utilities. That excess, billed-for generation takes the place of utility-provided generation and all the infrastructure, transmission, and delivery costs associated with serving that load with energy and capacity that the utility otherwise would incur. If properly forecasted and allowed to grow to full economic potential, that excess customer generation would further reduce system costs and provide increasing benefits to all the customers by substituting for more expensive resources that the utility would otherwise have to provide. Excess customer generation is not the same as wholesale generation, and to treat it as such is unfair to customer generators and does not accurately account for its value as a resource. It is a different resource no matter how stridently the utilities and their witnesses assume otherwise.

Supplemental Rebuttal Testimony of Karl Rábago, pp. 4-5.

Exemplary of this conceptual and analytical flaw is the argument advanced by witness Seelye on behalf of the Companies, that excess generation from net metering customers should be completely discounted.

> Companies witness Seelye insists that distributed solar, which produces capacity at or very near the point of load, should receive no capacity credit because distributed solar facilities do not have PPAs with the utilities, and because when the utility overbuilds capacity, the capacity value of any increment of additional capacity, even if less expensive than existing capacity, has a capacity value of zero.[5] Witness Sinclair proposes that the energy value of net metered generation be unreasonably calibrated against a two-year PPA price for avoided energy "[b]ecause the vast majority of net metered customers employ fixed tilt solar technology."[6]
>
> The tilt technology has nothing to do with any basis for decrementing the value of a unit of excess exported energy. It appears from witness Sinclair's testimony as a whole that the basis for the punitive and confiscatory proposed value is linked to shortest-possible contract term. That is, it appears that witness Sinclair would value excess customer generation much lower simply because customer generators have not executed multi-decade wholesale PPAs with the utilities. For what appears to be similar reasons, witness Sinclair joins with witness Seelye in proposing no credit for avoided generation capacity for excess customer generation. This approach is nonsensical given the fact that net metered generation, once installed, is likely to continue operating in highly predictable

[5] Seelye supp. direct test. at 22, et seq.
[6] Sinclair supp. direct test. at 19, lines 21-22.

> ways for three decades or more, even without a PPA. The approach is also discriminatory against customer generators (generation for use) who are seeking relief from high electric bills through self-generation, and who should not have to become generation contracting experts (generation for sale for resale) in order to receive fair compensation for the value of their incidental energy exports.

Rábago, supra, at 5-6.

There are numerous other areas in which the status of a PURPA QF and a retail net-metering customer are fundamentally dissimilar. A net metering customer will ultimately consume all of the energy they generate, including that which is exported, and any excess that consumed when the customer ceases taking service will be extinguished and is without cash value. That is distinctly different than QFs, who can get payment for export and can be a 100-percent export entity, a status that is neither desirable nor permissible for NMS customers.

Joint Intervenors urge the Commission to expressly reject the Company's narrow interpretation of this Commission's authority and statutory mandate, and to apply the methodology and principles outlined in the May 14, 2021 KPC NMS Order in calculating a fair value for crediting excess fed-back solar.

For its part, the Attorney General and KIUC support the Companies' position, mistakenly conflating net metering customers with PURPA QF facilities. Exemplary of this is the suggestion that net metering customers "dispatch back" electricity to the grid. *Joint Post-Hearing Brief of AG and* KIUC p. 17. Net metering retail customers do not "dispatch back" electricity - they feed electricity into the local grid incidental to their generation for use. The "dispatch" characterization is inapt for customer generators who may feed electricity into the local grid during daylight hours while consuming electricity from the grid on off hours and is a term applicable only to generators who sell for resale.

The suggestion that market pricing is appropriate for net-metered electricity flows from this same flawed comparison. When electricity is fed into the grid from a net metered customer, other local utility customers use that power and the utility meters that usage and collects a retail rate from the neighboring customer when that electricity passes through a meter. The unreasonably low compensatory "wholesale" credit rate for these exports proposed by the Companies and endorsed by the large industrial customers and the Attorney General would provide an unjust and unearned windfall to the monopoly utilities while ignoring system benefits generated by that power.

The AG / KIUC argument that electricity "should be purchased at the lowest reasonable price" similarly conflates net metering generation with QFs. This is not a procurement activity, but rather is a question of just compensation for incidental exports or injections of energy into local grids.

Finally, the argument that the compensation rate for exports/injections from net metering facilities should be set at "market" rate displays a fundamental lack of understanding about the principles of market price formation. There is no "market" for net metering exports, nor is there freedom of entry or exit from a market by a net metering customer due to utility requirements and restrictions. There is insufficient volume of systems and exports to support rational price formation using market rates.[7]

[7] There is no evidence that supports the assertion that retail compensatory credit for exports overcompensates net metering customers. Indeed, since utilities operating under cost-of-service regulation, the retail rate is supposed to reflect the total costs of delivering a kilowatt-hour of energy. If compensatory crediting for injection of net metered electricity at or very near the point of use is excessive, then it must be that the retail rate is excessive as well. There is no evidence that supports the assertion that net metering "requires the utilities to pass excessive costs on to their non-net metering customers." The evidence in the record refutes the assertion that "it has become clear" that net metering promotes unfairness.

V. JOINT INTERVENORS' RESPONSE TO SPECIFIC BENEFIT - COST COMPONENTS IDENTIFIED BY THE COMMISSION

In order to quantify benefits, costs, and cost avoided that are associated with net-metered distributed generation, the preferred approach is to require and to utilize actual data from operation of a significant number of such installations in order to more accurately quantify such benefits, costs, and avoided costs. The Companies have failed to provide detailed, measured real world data including metered data on gross and net consumption by net-metering customers, export levels and times, hosting capacity impacts, marginal distribution capacity costs at feeders hosting net metering, patterns and trends in net metering system deployments, sizes, system features, co-siting of distributed storage, and technologies employed such as inverters and tracking.

Notwithstanding the valuable inputs from several parties on methods for quantifying avoided costs, there remain significant values that have not been robustly analyzed and comprehensively quantified by the Companies. In some cases, these deficiencies are due to lack of general agreement on methods, and in other cases, the lack of detailed data from the host utilities. Joint Intervenors stress that the correct value of a real avoided cost, even if it is hard to quantify, is not zero. For this reason, interim default values should be considered by the Commission in setting just and reasonable rates for DG exports. Joint Intervenors cited the *Hayibo and Pearce* meta-analysis as a reasonable source for such values.

Joint Intervenors would draw the Commission's attention to a fundamental fallacy in the Company's attempts to discredit valuation methods that rely to any extent on embedded costs. Joint Intervenors would first point out that a just and reasonable export compensation rate for net metering must properly consider the entire future stream of benefits—avoided costs—created by net metering generation over the entire useful lives of such systems. It is only logical that

historical, or embedded costs, will inform the magnitude and timing of avoided and avoidable future costs. Joint Intervenors next point to the fact that quantification of energy value based on system lambda or ISO locational marginal prices are inherently themselves based on derivations of historical data. Regulatory practices, such as future test year methods, benefit-cost assessments, integrated resource plans, and even avoided cost calculations for PURPA avoided cost rates all rely on extrapolations and extensions of historical data to inform future values.

Joint Intervenors support the Commission drawing on the extensive work undertaken in Minnesota to establish a fair and comprehensive value of solar for purposes of determining compensatory credits and the true cost of service. As noted by witness Rábago, who participated in the development of the Minnesota Value of Solar ("VOS") law and methodology, the approach is reasonable:

> It is important to note that the law (Minn. Stat. § 216B.164, subd. 10(e)-(f)) which created the VOS methodology gave the utilities the option of adopting a VOS-based compensation rate in lieu of a traditional net metering rate. Xcel has never chosen to use the VOS rate for that purpose. Mr. Rábago finds that giving the utilities the option of using the VOS methodology or retaining full retail net metering is reasonable.
>
> The Minnesota Public Utilities Commission also made the VOS methodology a requirement for setting the compensation rate for subscribers to the Minnesota Community Solar Garden's program, which was created by an act of the Minnesota legislature in 2017. Mr. Rábago finds that requiring VOS-based compensation for Community Solar Garden participants is reasonable, as are associated requirements for annual updates and compliance filings.
>
> Mr. Rábago notes that, as documented in the Xcel proposal, the original VOS methodology developed by the Minnesota Department of Commerce Division of Energy Resources has been modified on several occasions within the Minnesota Public Utilities Commission's Docket No. E-999/M-14-65. Mr. Rábago finds that the Commission's approach to such modifications is also reasonable and has improved the VOS methodology.
>
> Mr. Rábago finds the Commission's decision regarding the Xcel proposal to modify the avoided distribution capacity component of the VOS methodology to be reasonable. That is, the modification of the avoided distribution capacity cost sub-methodology which replaces a peak demand growth method with a method based on actual distribution

> capacity infrastructure spending appears to be an improvement that reduces volatility in the avoided distribution capacity cost calculation.
>
> Mr. Rábago also finds reasonable the Minnesota Commission's rejection of Xcel's proposed 50% deferral reduction factor.
>
> Mr. Rábago finds reasonable the Minnesota Commission's decision to initiate discussions around how to determine which distribution system projects are included in the calculation of the avoided distribution capacity cost. Mr. Rábago is not aware that that process has been concluded.
>
> Mr. Rábago also finds reasonable the Minnesota Commission's order to Xcel that it discuss with stakeholders' ideas proposed by University of Minnesota Professor Gabriel Chan relating other methods to improve the VOS methodology.

Response Of Joint Intervenors Mountain Association, Kentuckians for the Commonwealth, Kentucky Solar Energy Society and Metropolitan Housing Coalition To Commission Staff's Fourth request For Information, pp. 2-3.

Joint Intervenors encourage the Commission to adopt the kind of best-practices processes that Minnesota has relied upon, including standardization of valuation methods, transparent and regular reporting of key data by utilities, public processes to consider and comment on utility calculations and reporting, and a regularized process for making amendments to methodology components.

As noted in the *Supplemental Rebuttal Testimony of James Owen On Behalf of Joint Intervenors,* the proposed compensation range of $.02319 to $.02677 per kWh for KU and a range of $.02319 to .02581 per kWh for LG&E is unreliable and is not grounded in a full benefit-cost assessment:

> [T]he analysis performed by Mr. Seelye takes the approach most favorable to the utilities position in every category and serves to demonstrate why an impartial study would be beneficial. To support his recommended ranges, Mr. Seelye offers analysis that appears to depart from the Commission's preferred methods in establishing a compensation rate in the Kentucky Power Company Case No. 2020-00174, at least as far as the components in the Modified Exhibit AEV – R5 NMS II Updated Avoided Cost analysis in that case. Mr. Seelye's calculations depart from that approach and result in *de minimis* values that he recommends be excluded from consideration.

Id. at pp. 1-2.

In recommending that the Commission reject the Companies' proposed calculations, Owens noted that

> Although I have advocated for additional components to be considered, at a minimum, the Commission should require the Companies to calculate the components using the same methods used in Case No. 2020-00174. Those numbers should be the starting point for the analysis provided by the Companies here, but Mr. Seelye chose a path far less fair to solar customer-generators.

Id. p. 2.

Since the Companies failed to provide calculations consistent with the KPC Order, in the absence of the Companies meeting their burden of proof, Owen "suggested that the Commission apply benchmarking to evaluate the Companies' position compared to other utilities value of solar rates – specifically the recent Kentucky Power Company case and the default values and ranges contained in the Hayibo and Pearce study.[8]" *Id*, pp. 2-3.

Owen then provided, at p. 3, a graphic comparison of the Companies' proposal as compared to the values derived from the KPC methodology utilized by the Commission:

Table 1: Comparison of Avoided Cost Categories and Values ($ per kWh)

Avoided Cost Category	KU (Proposed)	LG&E (Proposed)	Kentucky Power (Ordered)
Energy	0.02319	0.02319	0.03893
Ancillary Services	0	0	0.00063
Generation Capacity	0	0	0.02816
Transmission Capacity	0	0	0.01245
Distribution Capacity	0	0	0.01046
Carbon	0	0	0.00578
Environmental Compliance	0	0	0.00105
Job Benefits	0	0	0
Total Dollars per kwh	**0.02319**	**0.02319**	**0.09746**

[8] Hayibo, K.S. and Pearce, J.M., *A Review of the Value of Solar Methodology with a Case Study of the U.S. VOS*, Renewable and Sustainable Energy Reviews 137 (2021).

Owens noted that "[t]he Companies' proposed figures in this case are far lower than the values determined by the Commission in the recent Kentucky Power decision. It is important to emphasize that although the Commission assigned no value to jobs benefits in the Kentucky Power case, it highlighted the potential importance of this factor and I recommend that the Commission continue to include this factor in its on-going efforts to establish just and reasonable values for solar energy." *Id.* p. 3.

To demonstrate that the Companies' proposed values were outliers, Owen compared the companies' proposed values to the different scenarios analyzed in the Hayibo and Pearce study. Table 2 below, taken from his rebuttal testimony at p. 4, shows the avoided cost components and values from the Hayibo and Pearce study for three scenarios – low cost, mid cost, and high cost. Notably, the "low" scenario is slightly lower, but reasonably close to the $.09746 per kWh the Commission established for Kentucky Power.

Table 2: Hayibo and Pearce Avoided Cost Categories and Values ($ per kWh)

Avoided Cost Category	Hayibo and Pearce (Low)	Hayibo and Pearce (Mid)	Hayibo and Pearce (High)
Generation capacity	0.0298	0.0302	0.0306
Transmission Capacity	0.0085	0.0353	0.0621
Distribution Capacity	0	0.0175	0.035
Environmental (includes carbon)	0.0122	0.1019	0.1916
O & M (Fixed)	0.0035	0.0095	0.0154
O & M (Variable)	0.0022	0.0107	0.0192
Health liability	0.025	0.0617	0.0983
Reserve Capacity	0	0.0079	0.0158
Fuel Cost	0.0125	0.0255	0.0385
Total Dollars per kwh	**0.0937**	**0.3002**	**0.5065**

Owen concluded that "[c]omparing these figures from Hayibo and Pearce and the Kentucky Power Company compensation rates, the figures provided by KU and LG&E are so far below the other studies that they cannot be reasonably relied upon as a just and reasonable compensation for solar customer-generators." *Id.* p. 4.

Joint Intervenors underscore the recommendation of witness Owen, that the "Commission should reject the Companies' approach and figures. The Commission should order them to provide updated analysis using the methodology consistent with the Kentucky Power Company order. Alternatively, the Commission should follow the suggestions in the supplemental direct testimony of Karl Rábago, who recommends the Commission reference default values and ranges contained in the Hayibo and Pearce study.[9]" *Owen, supra,* pp. 4-5.

Turning to the specific benefits and costs that the Commission requested the parties address in these supplemental proceedings, the Joint Intervenors support the efforts of KYSEIA to provide more fair compensatory crediting for the benefits (and costs avoided) of net-metered electricity and offer these additional points for consideration.[10]

1. Avoided energy cost

The Companies propose to use their most recent solar PPA (the Rhudes Creek project) as the basis for setting the avoided energy cost, which is also the basis for their proposed SQF and LQF rates. This approach is flawed and is not a reasonable basis for determining avoided energy costs, for several reasons.

The approach is inconsistent with their own definition of avoided cost, as defined by Witness Seelye in his direct testimony. "The term *avoided energy costs* means the incremental

[9] Hayibo, K.S. and Pearce, J.M., *A Review of the Value of Solar Methodology with a Case Study of the U.S. VOS*, Renewable and Sustainable Energy Reviews 137 (2021).

[10] Joint Intervenors note that while the Companies believe that the *Hayibo and Pearce* study should be rejected as "hearsay" (an odd objection addressed to a meta-analysis synthesizing with references the methodologies of numerous published studies), that witnesses Rábago and Owen have cited to a score or more of studies that have determined the value of solar, and which the Companies (as evidenced by the testimony of witness Conroy) apparently never bothered to read. Stacked against these studies and the robust and transparent approach in the Minnesota VOS study, is the anecdotal and conclusory testimony of Company witnesses that the values identified in the KPC case as components of "cost" are minimal and should be discounted.

costs of the energy that the utility would otherwise generate itself or purchase from another source if the customer-generator did not supply the energy." Direct Testimony of William Seelye, November 25, 2020, p.44. There is no reason to assume that the energy from a single solar PPA would be the next unit of energy produced if the customer-generator failed to supply power. The fact that most net metering customers use solar PV generators does not mean that when the NM customer's system is not producing, the Companies will draw replacement power from the Rhudes Creek Solar Project in particular. Indeed, as a non-dispatchable resource whose output is dependent upon solar irradiation and weather conditions, the Companies would be expected to take all generation from the Rhudes Creek Solar project for sale to their customers, whenever it's produced; and use dispatchable resources or market purchases to fill in load at the margins.

Witness Justin Barnes for KYSEIA presents additional logical critiques of the Companies' avoided energy cost proposal in his Supplemental Rebuttal Testimony dated August 5, 2021. Barnes also presents a more reasonable approach to determining the avoided energy cost; an approach more consistent with the approach used by the Commission in the Kentucky Power Company net metering case.

2. Ancillary services cost

Joint Intervenors adopt by reference the proposal in the KYSEIA brief regarding ancillary services costs. Joint Intervenors also urge the Commission to address opportunities for distribution-level ancillary services possible with smart inverter technology in the *Investigation of Interconnection and Net Metering Guidelines* Case No. 2020-00302.

3. Generation capacity cost

The Companies have proposed to assign little to no value to savings on generation capacity costs but have failed to properly assess the benefits and costs of net metered distributed generation on the systems in a manner that satisfies the Commission-adopted principle that distributed generation from net metering should be considered as a resource rather than a burden.

> [T]he Companies would assign a value of zero or minimize the assigned value of excess customer generation based on situations where the utilities have chosen to ignore or not to analyze, measure, or even collect key data about the costs and benefits of distributed generation operations.
>
> Witness Seelye says that while small qualifying facilities provide hedging value, that value should be ignored because the Companies chose to expose customers to all fuel price risk.[11] Witness Seelye would ignore the actual capacity value of small solar generation because the generators do not have a contract to provide that capacity, an approach that places form over substance.[12]

Supplemental Rebuttal Testimony of Karl Rábago, p. 8.

With regards to avoided generation capacity, the Companies argue that net metering offers no capacity benefits because the Companies currently have excess generating capacity. However, during the hearing the Commission brought forward two significant facts which undermine this claim. First, the Commission referenced an RFP for 300 – 900 MW of new capacity, to come online by 2025 (or possibly earlier), issued by the Companies in January 2021. When asked by Staff how they reconcile this solicitation for new capacity with their insistence that they have no need for new capacity prior to 2028, Witness Seelye could not reconcile this contradiction.

Second, Commissioner Chandler engaged in a discussion with witness Sinclair concerning the 'Stay Open Costs' of existing generating facilities versus the 'Replacement Costs' of potential new facilities. In this discussion, witness Sinclair acknowledged that if the Replacement Cost of new capacity is sufficiently lower than the Stay Open Cost of existing generation, the Companies

[11] Seelye supp. direct test. at § V.
[12] *Id.*

would pursue adding the new capacity and closing the existing, more expensive generator. In other words, the fact that the Company currently has more capacity than it needs does not mean that it would not procure new, lower cost capacity if it came available, and that therefore new capacity does have potential value even when the Companies have sufficient generating capacity to serve their load. Exported energy from net metered facilities is exactly the kind as-available power that provides capacity benefits at lower cost than incumbent facilities.

4. Transmission capacity cost

As to the proposal by the Companies that transmission capacity benefits should not be included in the value of rooftop solar energy, the Companies have substituted self-serving conjecture for robust analysis.

> Witnesses Seelye and McFarland believe the Companies can and should ignore any transmission capacity benefits of distributed generation because it is "unlikely" that net metering would help avoid such costs.[13] The Companies "have not been able to identify any avoided costs related to the energy that customer-generators supply to grid."[14] Much of the explanation for this inability to calculate value for distributed generation may be the Companies' historic and expected success in stifling the economic potential and growth of distributed generation.[15] The Companies' biased assumptions about 'likelihood' and decisions to ignore or treat as *de minimis* distributed generation impacts on planning decisions do not mean there is no transmission-related value associated with distributed generation exports—it just means the Companies have decided not to fairly quantify such value and to assume that their generation sector hegemony will remain unchallenged and unchanged.

Supplemental Rebuttal testimony of Karl Rábago, p. 8.

The Companies argue that customer-generation offers no avoided transmission or distribution capacity value. They have provided insufficient data and analysis to justify this conclusion, while offering only anecdotal reference to conversations with other employees of PPL to support their position.

[13] Seelye supp. direct test. at § VI; McFarland supp. direct test. at § II.
[14] Seelye supp. direct test. at § VI, p. 25, lines 17-18.
[15] McFarland supp. direct test. at 4, line 11 through 6, line 6.

In the absence of a credible analysis from the Companies, Barnes' approach to estimating the avoided cost of transmission and distribution appears to be a reasonable estimate.

5. Distribution capacity cost

Joint Intervenors believe that the KYSEIA proposal in this category represents a more fair analysis than the Companies' proposal.

6. Carbon cost

The Companies failed to assign any value to the avoided carbon costs of customer generation, arguing that since there is not presently a price on carbon, there is no avoided cost of carbon for these customer-owned resources. The Companies' approach fails to comply with the Commission's principle of conducting forward-looking, long-term, and incremental analysis, and is inconsistent with the Companies' own arguments presented to the Commission in support of the Brown Station 10 MW solar project.

As noted by witness Rábago, and as the Commission has recognized in the KPC NMS Order, there is a significant probability of carbon pricing over the next decade and ignoring this reality would fail to credit customer-generators for a legitimate value that they are providing to the Companies and other ratepayers.

During the August hearing, Witness Seelye stated in response to a question from Commissioner Cubbage that it is unknown what environmental regulations might be passed in the future. For example, he asked, what regulations might Jefferson County impose?

This is a pertinent question since Louisville Metro government has in fact passed an ordinance committing Metro government to using 100% clean renewable electricity by 2030 and the entire Louisville community to 100% clean energy by 2035. The fact that the largest city in LG&E's service territory has committed to being powered by 100% clean, renewable energy,

within the next 10 years, is powerful evidence that carbon costs should be accounted in the benefit cost analysis of net metering.

Further, KU-LG&E's parent company PPL has a corporate commitment to achieve net-zero carbon emissions by 2050. As stated on their website:

> PPL is proactively taking steps to advance a cleaner energy future. We have set clear goals that have a sustainable impact on our environment for the communities, customers and stakeholders we serve.
>
> Net-Zero Emissions by 2050
>
> PPL has set an ambitious goal to achieve net-zero carbon emissions by 2050. In addition, we are targeting a 70% reduction from 2010 levels by 2035 and an 80% reduction by 2040.

https://www.pplweb.com/sustainability/climate-action/ accessed 8-26-2021

Despite this ambitious goal, KU-LG&E forecast their carbon emissions for 2040 to be 13.6 million tons CO2e, a 63% reduction from 2010 levels, falling short of PPL's 80% reduction goal. Worse still, they project their carbon emissions to still be 12.3 million tons CO2e in 2050, only 50% below current levels, and much greater than zero. The Companies' actual forecast falls far short of corporate goals established by their parent Company.[16]

The Companies have argued that rooftop solar offers no avoided carbon costs, because presently there is no federal or state carbon pricing regulation. However, under the Companies' "Business-As-Usual" forecast, they will miss parent PPL's commitment to achieving net zero carbon emissions in 2050 by a huge margin. For the Companies to claim that steps toward meeting this net-zero target have no value, when their current business plan has them

[16] Source for KU-LG&E carbon emissions forecast: Companies' response to the Joint Intervenor's second supplemental data request (Companies Response to MA-KFTC-KSES-MHC-3 Question No. 6(4), August 2, 2021, p.27 pdf).
Source for KU-LG&E CO2 emissions in 2010, which were 37,000,000 tons: Kentucky Energy Profile, 6th Edition, 2017 (Kentucky Energy and Environment Cabinet, p. 31).

overshooting it by 12 million tons, strains credulity. Customer-owned resources that reduce carbon emissions will help the Companies and PPL to meet their corporate net-zero-carbon commitment and have a quantifiable value. They also provide a hedge against the risk of impending carbon regulation, reducing the Companies' exposure to future carbon compliance costs.

The failure to assign any current value to avoided carbon costs is fundamentally inconsistent with the representations made under oath to this Commission in Case No. 2014-00002, where the Companies sought and received Commission approval for the construction of a 10 MW solar array at the Brown Station.

In that case, witness Sinclair testified in this manner concerning carbon costs:

> Q. You have previously testified that regulation of CO2 was essentially "unknown and unknowable." Has your position changed?
>
> A. Somewhat. As I said, the future remains highly uncertain regarding CO2 regulation in the U.S. Many people believe that the Clean Air Act is not really suited for regulating CO2 emissions and that new legislation is needed from Congress. Given the current climate in Washington, it is hard to envision bipartisan support for GHG legislation. Second, court challenges continue related to past actions taken by EPA to regulate CO2 emissions and threats of future litigation are being made should EPA press ahead on regulations for existing power stations. In this environment, much remains unknown about if, when, and how CO2 might be regulated in the future. However, the Companies feel that enough is known that the risk of future CO2 regulations should be part of a 30-year analysis related to the next generation resource and that a resource should be economically robust with or without future CO2 regulations. I would add, however, that there is not enough known about the potential for CO2 regulations to evaluate material changes to the Companies' existing generation fleet."
>
> I would point out that the Companies are recommending the construction of a NGCC unit and a solar facility, both of which become more economically attractive the greater the weight one places on future CO2 emission costs.
>
> While the Brown Solar Facility is not a lowest reasonable cost resource absent REC prices greater than $57/REC, as can be seen in Tables 35, 36, and 37 in the Resource Assessment, the Companies are proposing to move forward with the project because *(i) it is a prudent hedge against both GHG regulations and natural gas price risk; (ii) it will reduce the Companies' GHG emissions;* (iii) it affords the Companies the opportunity

> gain operational experience with an intermittent renewable resource; and (iv) it does not materially add to revenue requirements over the next 30 years.

Thus, two of the four reasons advanced by the Companies in seeking approval were that investment in solar had value to customers as a "prudent hedge against both GHG regulations and natural gas price risk" and because it would "reduce the Companies' GHG emissions." Net-metered solar provides many of these same benefits to the utility that the utility-owned array would, according to its' own witnesses, provide with respect to price volatility, anticipating and hedging against greenhouse gas regulation, and lowering overall GHG emissions.

In the 2013 LG&E and KU Resource Assessment filed in Case No. 2104-00002, it is also noted that:

> Given the increasing likelihood of CO2 constraints and the ability to sell Renewable Energy Certificates ("RECs"), the Companies also recommend building a 10 MW solar facility at the existing E.W. Brown station. The solar facility is a prudent hedge against both GHG regulations and natural gas price risk, it will reduce GHG emissions, it affords the Companies the opportunity to gain operational experience with a solar PV resource, and it does not materially add to revenue requirements over the next 30 years.

The testimony of John Voyles on behalf of LG&E/KU in that case further underscored that there are tangible, measurable benefits to expanded solar generation within a utility system in the Commonwealth; benefits that the Companies now seek to dismiss since there is ROE attached to them. Witness Voyles noted that "Given the increased likelihood of carbon constraints, the Companies believe the Brown Solar Facility will be a valuable addition to their generation portfolio[.]"

It is curious indeed that it is only when expanding solar generation is proposed by the *utility*, and a ROE is approved for hat investment, values and benefits described as "intangible" and "unquantifiable" take on a quantifiable, measurable, and tangible form.

As noted by witness Rábago, the failure to assign a value to avoided carbon costs in valuing the input of net metered renewable energy, is inconsistent with forward-looking planning and sound utility policy.

> Witnesses Sinclair and Seelye repeat the utilities' long-standing failure to recognize that customer-generated renewable energy avoids future carbon emissions and therefore has value as a cost-reducer under potential carbon regulatory systems. Future compliance costs for carbon emissions are a practical planning certainty, as is the fact that the Companies will seek to pass compliance costs onto Kentucky customers. The Companies' position continues to be out of step with sound utility planning, and unreasonably requires customer generators to become professional emissions and REC traders in order to realize a fair value for avoided future carbon control costs. The Companies' witnesses take the further step of asserting that there is no future value of avoiding future emissions because there is no current law or regulation in Kentucky that prices carbon emissions.[17] While federal avoided cost regulations may limit the inclusion of future avoided environmental costs in current avoided cost rates for wholesale generation under current interpretation of the limited powers of the federal government, the authority of the Commission to require the monetization of value for avoided retail costs under the Constitutional authority that states enjoy in accordance with their police powers is not so circumscribed. To expect the Commission to circumscribe its statutory authority to set just and reasonable rates in order to treat excess customer generation like wholesale power sold under contract is improperly discriminatory. This discrimination means the Companies' overall approach to proposing their NMS-2 tariffs is not just and reasonable.

Supplemental Rebuttal Testimony of Karl Rábago pp. 6-7.

As to the carbon price that the Commission should use in setting the avoided carbon cost in the absence of any credible proposal by the Companies. Joint Intervenors suggest a range of pricing scenarios should be considered. At the low end, there is the carbon pricing used in the Companies' 2018 Integrated Resource Plan. CO2 Price Scenarios from LG&E-KU 2018 IRP, Case No. 2018-00348, page 5-24. As the Companies discuss in their IRP, this pricing forecast was chosen after the Trump Administration repealed the Clean Power Plan and pulled the United States out of the Paris Climate Accords. The Federal government's focus on climate change has

[17] Sinclair supp. direct test. at 20, line 6 through 21, line 10; Seelye supp. direct test. at § VIII.

changed dramatically since 2018, as has the nation and world's understanding of the gravity of the climate crisis. The Biden Administration has identified addressing climate change as one of its highest priorities and one of its earliest steps was to update the federal government's guidance on the social cost of carbon. This federal report provides a basis for medium and high carbon pricing scenarios. On his first day in office, President Biden issued an Executive Order re-establishing the Interagency Working Group (IWG) on Social Cost of Greenhouse Gases, an indication of the priority President Biden places on this issue. *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990, Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, February 2021, Appendix Table A-1 p.46.*

Joint Intervenors recommend that the Commission to adopt the medium or high carbon pricing scenario in determining the avoided cost of carbon. The Low Scenario, based on the Companies' 2018 IRP, utilizes pricing which is significantly outdated and was derived at a time when the federal government was actively retreating from efforts to combat climate change. The Medium and High Scenarios present pricing which is far more consistent with the urgency of the climate crisis and which is more consistent with the federal government's renewed commitment to aggressive action. Assigning no or minimal value to the carbon price as proposed by the Companies allows PPL to take the carbon benefits of their customer's solar investments without providing fair compensation for the value.

Using the worksheet prepared by the Commission in the Kentucky Power Case to calculate the avoided carbon cost, Joint Intervenors have calculated LG&E-KU's avoided carbon cost under three scenarios, using the Companies' forecast customer load and carbon emissions

through 2045. Table 1 shows the range of avoided costs of carbon under three carbon pricing scenarios.

The Low Scenario (1) uses the carbon pricing from LG&E-KU's 2018 IRP. The Mid and High Scenarios (2 and 3) use the carbon pricing from the IWG report on the social cost of carbon (February 2021). As James Owen discussed in his supplemental testimony (July 13, 2021), the IWG report advises using a discount rate of 3% or lower in matters involving long-term, intergenerational impacts. The IWG report offers annual carbon prices at multiple discount rates. Based on the IWG's guidance, scenarios using discount rates of 3% and 2.5% were used for this analysis.

Table 1 – Avoided Cost of Carbon in Three Carbon Pricing Scenarios

	Scenario 1- Low (LGE-KU IRP 2018)	Scenario 2 – Mid IWG SCC @ 3%	Scenario 3 – High IWG SCC @ 2.5%
Avoided Cost of Carbon	$0.01265/kWh	$0.04619/kWh	$0.06711/kWh

Joint Intervenors Exhibit 1 provides the worksheets used for this analysis.

7. Environmental compliance cost

While the Companies would discount completely the avoided costs of environmental compliance, arguing that they are accounted for elsewhere (without demonstrating how), the testimony advanced by the Companies in Case No. 2014-00002 as a reason to approve the addition of a 10 MW solar array to the Companies' generating fleet, *in addition to* the hedge

against GHG regulation and the value in reducing the generation GHG footprint, was the avoided cost of environmental permitting associated with the no-emission, no-discharge generation of electricity through solar. The Director of Environmental Affairs testified in that case in support of the E.W. Brown solar array, noting the value of solar with respect to environmental permitting and regulatory compliance costs when he stated that "[t]here will be no requirements for an air permit or water withdraw/discharge permit."

Whether the solar-generated electricity comes from a net-metering customer or a company-owned array, the avoidance of environmental permitting and compliance costs is a current and a future value that cannot reasonably be dismissed.

8. Job benefits

The Commission's June 30, 2021 *Order* requested that the parties address, *inter alia*, "job benefits as they related to calculating the NMS-2 export compensation rates." Rather than comply with the Commission's order, the Companies have asserted that jobs benefits are an externality which is beyond the jurisdiction of the Commission.

During the August hearing, in response to a question from Commission Vice Chair Cubbage, witness Seelye confirmed that the Companies did not conduct any analysis of the job benefits provided by net metering. Rather, the position of the Companies is that the consideration of economic benefits, including jobs, that might be created through expansion of rooftop solar, is beyond the jurisdiction of the Commission.

As noted by Witness Rábago in his rebuttal testimony,

> First, witness Conroy's testimony reports broadly worded language from prior Kentucky Public Service Commission ("Commission") decisions that involve the interpretations of those Commissions of their statutory authority. With all due respect to prior Commissions and Commissioners, it is the ongoing duty of sitting Commissions to interpret the authority—especially relatively new authority—that their legislatures have granted them, updated as necessary for current circumstances, and tailored to the cases

> presented for decision. The instant cases relate to assessing a just and reasonable compensation value embodied within a specific rate for exported energy under a net metering service tariff. The question of whether the Commission should consider employment and other economic development activities resulting from the increased deployment of electric generation and the associated rates is within the proper scope of assessment of rates and services and whether those rates are just, fair, and reasonable. Second, as a former utility commissioner, I would be surprised if the Commonwealth's primary economic regulators did not consider the job impacts of its decisions relating to utility rates and services. The lengths to which the Companies' witness goes in a failed effort to distinguish economic development rates only serves as testament to the relevance of economic impacts—including job impacts—to Commission decision making.
>
> Third, the Companies' position is at its heart discriminatory and at odds with best practices relating to the evaluation of costs and benefits of energy resources. The Companies are perfectly comfortable touting the economic development benefits of self-build resources they propose and the load-building activities, like economic development rates, that it advances to generate increases in its' revenue requirements and profits. To take the exact oppositive view of the positive economic development benefits associated with non-utility generation is on its face unreasonable and discriminatory. It appears the only real distinction is that customer generation does not add to the rate base and is even more economic than some of the existing rate base of the utilities. This issue reinforces the need for and wisdom in the Commission adopting the principle that benefits and costs must be treated symmetrically, as stated in the KPC order.[18]

Supplemental Rebuttal Testimony of Karl Rábago, pp. 2-3.

The strategic decision of the Companies to ignore economic development and job benefits as a component of valuing net-metered electricity to the utility and other customers, should not result in assignment of no value to such benefits. As noted by witness Rábago:

> In addition to joining in the argument that the Commission has no authority to consider job creation as a general matter, witness Seelye asserts that the Commission cannot consider a jobs creation benefit provided by distributed generation deployment because "jobs creation would not affect the Companies' cost of providing service."[19] Of course, just as economic development rates benefit all rate payers by ultimately inducing both direct and indirect increases in employment, the benefits of the growth of a distributed generation industry in the Companies' service areas would impact costs and revenues. The Companies choosing not to evaluate these impacts does not mean they are not real.

Id., at p. 9.

[18] Commission Order in 2020-00174 at 22.
[19] Seelye supp. direct test. at 29, lines 9-11.

VI. JOINT INTERVENORS SUPPORT THE KYSEIA PROPOSED QF TARIFF AND DEFER TO KYSEIA ON DEMONSTRATING THE COMPLIANCE OF THAT PROPOSED TARIFF WITH PURPA AND THE REGULATIONS IMPLEMENTING THAT ACT

Joint Intervenors agree with and adopt as their own, the arguments advanced by KYSEIA concerning the proposed QF Tariff, and the consistency of the KYSEIA proposal with PURPA, as well as the inconsistency of the Companies' proposal with PURPA and regulations implementing that law.

VII. JOINT INTERVENORS SUPPORT CONSENSUS LANGUAGE ON JOINT ACCOUNT OWNERSHIP AND TRANSFER ISSUES

The Companies, the Joint Intervenors, the Attorney General, Commission Staff, and KYSEIA worked together, to develop consensus language on joint account ownership that provides customers taking service under a NMS tariff with both notice and an opportunity to assure that credits accruing to an account can be shared among joint account holders. Joint Intervenors support the consensus language and encourage Commission approval of same.

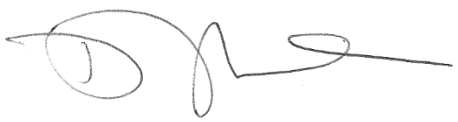
CONCLUSION AND PRAYER FOR RELIEF

For the reasons stated above, and based on the Post-Hearing Brief, Post-Hearing Reply Brief, testimony, supplemental testimony and rebuttal testimony, and responses to data requests filed by Joint Intervenors in these cases, Joint Intervenors respectfully request that this Commission:

1. Reject the proposed NMS 2 Rider as being unfair, unjust, and unreasonable in defaulting to the SQF tariffed avoided cost rather than providing an empirical and analytically sound basis for determining the benefits (i.e. avoided costs) associated with the introduction of renewable electricity into the grid through net metering; and

2. For any and all other relief to which Joint Intervenors may appear entitled.

Respectfully submitted,



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Certificate of Service

This is to certify that the electronic version of the foregoing *Post-Hearing Brief of Joint Intervenors* is a true and accurate copy of the same document that will be filed in paper medium; that the electronic filing has been transmitted to the Commission on September 7, 2021; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that in accordance with the July 22, 2021 Commission Order in Case No. 2020-00085, no hard copy of this filing will be transmitted.

Tom FitzGerald

Attachment 1 SB 100 As Enacted

Source LRC Website

AN ACT relating to net metering.

Be it enacted by the General Assembly of the Commonwealth of Kentucky:

➔Section 1. KRS 278.465 is amended to read as follows:

As used in KRS 278.465 to 278.468:

(1) "Eligible customer-generator" means a customer of a retail electric supplier who owns and operates an electric generating facility that is located on the customer's premises, for the primary purpose of supplying all or part of the customer's own electricity requirements.

(2) "Eligible electric generating facility" means an electric generating facility that:

(a) Is connected in parallel with the electric distribution system;

(b) Generates electricity using:

1. Solar energy;

2. Wind energy;

3. Biomass or biogas energy; or

4. Hydro energy; and

(c) Has a rated capacity of not greater than ***forty-five (45)***~~[thirty (30)]~~ kilowatts.

(3) "Kilowatt hour" means a measure of electricity defined as a unit of work of energy, measured as one (1) kilowatt of power expended for one (1) hour.

(4) "Net metering" means~~[measuring]~~ the difference between the***:***

(a) Dollar value of all~~[electricity supplied by the electric grid and the]~~ electricity generated by an eligible customer-generator that is fed back to the electric grid over a billing period ***and priced as prescribed in Section 2 of this Act; and***

(b) Dollar value of all electricity consumed by the eligible customer-generator over the same billing period and priced using the applicable tariff of the retail electric supplier.

➔Section 2. KRS 278.466 is amended to read as follows:

(1) Each retail electric supplier shall make net metering available to any eligible

customer-generator that the supplier currently serves or solicits for service. If the cumulative generating capacity of net metering systems reaches one percent (1%) of a supplier's single hour peak load during ***a calendar***~~[the previous]~~ year, the ***supplier shall have no further*** obligation~~[of the supplier]~~ to offer net metering to ***any***~~[a]~~ new customer-generator ***at any subsequent time***~~[may be limited by the commission]~~.

(2) Each retail electric supplier serving a customer with eligible electric generating facilities shall use a standard kilowatt-hour meter capable of registering the flow of electricity in two (2) directions. Any additional meter, meters, or distribution upgrades needed to monitor the flow in each direction shall be installed at the customer-generator's expense. If additional meters are installed, the net metering calculation shall yield the same result as when a single meter is used.

(3) ***A retail electric supplier serving an eligible customer-generator shall compensate that customer for all electricity produced by the customer's eligible electric generating facility that flows to the retail electric supplier, as measured by the standard kilowatt-hour metering prescribed in subsection (2) of this section. The rate to be used for such compensation shall be set by the commission using the ratemaking processes under this chapter during a proceeding initiated by a retail electric supplier or generation and transmission cooperative on behalf of one (1) or more retail electric suppliers.***

(4) Each billing period, compensation provided to an eligible customer-generator shall 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. Excess bill credits shall not be transferable between customers or premises. If an eligible customer-generator closes his or her account, no cash refund for accumulated credits shall be paid.

(5) 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.

(6) 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 paragraph 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~~[The amount of electricity billed to the eligible customer-generator using net metering shall be calculated by taking the difference between the electricity supplied by the retail electric supplier to the customer and the electricity generated and fed back by the customer. If time-of-day or time-of-use metering is used, the electricity fed back to the electric grid by the eligible customer-generator shall be net-metered and accounted for at the specific time it is fed back to the electric grid in accordance with the time-of-day or time-of-use billing agreement currently in place.~~

~~(4) Each net metering contract or tariff 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.~~

~~(5) The following rules shall apply to the billing of net electricity:~~

~~(a) The net electricity produced or consumed during a billing period shall be read, recorded, and measured in accordance with metering practices prescribed by the commission;~~

~~(b) If the electricity supplied by the retail electric supplier exceeds the electricity generated and fed back to the supplier during the billing period, the customer-generator shall be billed for the net electricity supplied in accordance with subsections (3) and (4) of this section;~~

~~(c) If the electricity fed back to the retail electric supplier by the customer-generator exceeds the electricity supplied by the supplier during a billing period, the customer-generator shall be credited for the excess kilowatt hours in accordance with subsections (3) and (4) of this section. This electricity credit shall appear on the customer-generator's next bill. Credits shall carry forward for the life of the customer-generator's account;~~

~~(d) If a customer-generator closes his account, no cash refund for residual generation-related credits shall be paid; and~~

~~(e) Excess electricity credits are not transferable between customers or locations~~].

(7)[~~(6)~~] Electric generating systems and interconnecting equipment used by eligible customer-generators shall meet all applicable safety and power quality standards established by the National Electrical Code (NEC), Institute of Electrical and Electronics Engineers (IEEE), and accredited testing laboratories such as Underwriters Laboratories.

(8)[~~(7)~~] An eligible customer-generator installation is transferable to other persons ***at the same premises***[~~or service locations~~] upon notification to the retail electric supplier and verification that the installation is in compliance with the applicable safety and power quality standards in KRS 278.467 and in subsection ***(7)***[~~(6)~~] of

this section.

(9)~~[(8)]~~ Any upgrade of the interconnection between the retail electric supplier and the customer-generator that is required by commission-approved tariffs for the purpose of allowing net metering shall be made at the expense of the customer-generator.

➔Section 3. KRS 278.467 is amended to read as follows:

(1) The commission shall have original jurisdiction over any dispute between a retail electric supplier and an eligible customer-generator, regarding net metering rates, service, standards, performance of contracts, and testing of net meters.

(2) No later than one hundred eighty (180) days from July 15, 2008, the Public Service Commission shall develop interconnection and net metering guidelines for all retail electric suppliers operating in the Commonwealth. The guidelines shall meet the requirements of KRS 278.466***(7)***~~[(6)]~~.

(3) No later than ninety (90) days from the issuance by the Public Service Commission of the guidelines required under subsection (2) of this section, each retail electric supplier shall file with the commission a net metering tariff and application forms to comply with those guidelines. All retail electric suppliers shall make their net metering tariff and interconnection practices easily available to the public by posting the tariff and practices on their Web sites.

➔Section 4. This Act takes effect January 1, 2020.