

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC 2021 JOINT INTEGRATED)
RESOURCE PLAN OF LOUISVILLE GAS) CASE NO. 2021-00393
AND ELECTRIC COMPANY AND)
KENTUCKY UTILITIES COMPANY)

SUPPLEMENTAL POST-HEARING RESPONSIVE COMMENTS OF
LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY

Filed: September 6, 2022

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I. INTRODUCTION

Louisville Gas and Electric Company (“LG&E”) and Kentucky Utilities Company (“KU”) (collectively, the “Companies”) respectfully submit these Supplemental Post-Hearing Responsive Comments regarding the Companies’ 2021 Joint Integrated Resource Plan (“2021 IRP”) and the comments recently submitted by various parties to this proceeding.

II. THE IRP PROCESS HAS WORKED WELL REGARDING THE COMPANIES’ TRANSFORMATIVE 2021 IRP.

Contrary to certain intervenors’ assertions that the Companies’ 2021 IRP was of “limited value and validity” and that the IRP process should be drastically changed in both length and level of review, the Companies submit that the 2021 IRP was transformative and that the IRP process worked well in this proceeding.¹ The Companies’ IRP modeled nine different scenarios and resulted in a base load, base fuel portfolio that would retire almost 2,000 MW of coal-fired generation, add 2,100 MW of solar generation, and ultimately reduce the Companies’ CO₂ emissions 26% from 2021 levels.² During this proceeding, the Companies provided historic quantities of data, conducted additional modeling as requested, and even engaged in discussions with other parties’ outside experts as requested. The parties to this proceeding fully exercised their opportunity to review and express their positions on the IRP’s planning methods and assumptions through three rounds of discovery, a two-day hearing to examine the Companies’ witnesses, and as many as four rounds of comments. In short, although a more informal and less adversarial process would have been more in accordance with IRP regulation and the Commission’s orders instituting the IRP regulation,³ this process did work, and it worked reasonably well, as a stakeholder process to review the Companies’ transformative 2021 IRP.

¹ See Joint Intervenors’ Supplemental Comments at 16 (Aug. 22, 2022).

² IRP Vol. I at 8-30.

³ See Companies’ Response Comments at 4-14 (May 20, 2022).

III. THE VALUE OF AN IRP IS IN THE PROCESS, NOT THE PLAN.

Contrary to the Joint Intervenors' view—but consistent with the text of the IRP regulation and the Commission's orders implementing the final regulation—the value of an IRP is not in the plan itself;⁴ rather, it is in the *process*, particularly the demonstration, review, and critique of a utility's resource planning process on a triennial basis. As the Companies discussed in their May 20 Responsive Comments,⁵ the Commission's *draft* IRP regulation was indeed focused on the creation of an essentially binding resource plan in each IRP that would be subject to a formal review and approval process that would include:

a requirement for a complete description of criteria and justification of the chosen resource plan; sensitivity analyses of the chosen resource plan; formalized criteria for Commission approval of the plan; and the requirement that any application of a certificate of public convenience and necessity or a rate change be consistent with a utility's most recently approved plan.⁶

But as the Companies further discussed in their May 20 Responsive Comments, the Commission's order implementing the *final* IRP regulation entirely changed that approach.⁷ It abandoned formal hearings, evaluation criteria, Commission approval, and requirements that the record of a utility's IRP process—its “plan”—be incorporated into subsequent rate or CPCN proceedings.⁸ Instead, the Commission stated, “The Commission believes an informal proceeding, where parties may exchange information and ideas in a less adversarial manner, may better serve the interests of the parties and the resource planning process.”⁹ And as further discussed in the Companies' May 20 Responsive Comments, KRS Chapter 278 contains no statutory authority for IRP proceedings to

⁴ See Joint Intervenors' Supplemental Comments at 3-15 (Aug. 22, 2022).

⁵ Companies' Response Comments at 6-7 (May 20, 2022).

⁶ Admin. Case No. 308, Order at 5 (Ky. PSC Apr. 28, 1989).

⁷ Companies' Response Comments at 7-8 (May 20, 2022).

⁸ Admin. Case No. 308, Order at 13-14 (Aug. 8, 1990).

⁹ *Id.* at 13.

result in substantive Commission findings, orders, or binding resource plans.¹⁰ Thus the Commission intentionally and explicitly, after more than a year of considering the binding resource plan approach in the draft IRP regulation, chose in the final IRP regulation to focus on the importance of the IRP process itself and the exchange of ideas and information the Commission intended to foster.

The Commission's ultimate decision to focus on the IRP process rather than the plan is understandable for a number of reasons, one of which is that there is a limit to how "real-world" a prescriptively occurring triennial planning process can be. Though the Companies endeavor to use as much real-world data and experience as possible in their IRP modeling, analysis, and projections, certain data are necessarily not "real-world" in that they are not immediately actionable. For example, it is unrealistic to expect that an IRP could incorporate actual supply-side bids, which a truly real-world plan that could be implemented in the near term would require; a utility would be unlikely to receive much, if any, genuine response to an RFP issued every three years in advance of a known, public, and prescribed planning process.¹¹ That is why the Companies use NREL cost projections for various resource options, which are "real-world" in the sense that NREL bases its projections on broad swaths of market data, but which are not real-world in the sense that the Companies have actionable bids to implement such resource options at those prices. That stands in contrast to CPCN proceedings, in which costs for known, actionable resource options are under consideration to make real-world, long-term investment decisions that will ultimately affect customers' service and rates.

¹⁰ Companies' Response Comments at 9-10 (May 20, 2022). The IRP regulation cites only two statutes for its support: KRS 278.040(3) and 278.230(3). The first statute contains the Commission's authority to issue regulations; the second statute provides the Commission the authority to require utilities to file reports and other information "that the commission reasonably requires."

¹¹ See, e.g., Hearing Video Day 2 at 14:00:53-14:01:57.

In addition, the Commission’s ultimate decision to focus on the IRP process rather than the plan is an acknowledgement of how a plan can be superseded by events and changes in the real world. Following a plan in the face of material change is imprudent, ignores opportunities created by the change, and creates inefficiencies. As recent events have shown, particularly the recent passage of the Inflation Reduction Act, there is real and prudent value in not committing to resource decisions until the time those decisions must be made. All resource decisions are ultimately made under conditions of uncertainty; that is unavoidable. But allowing at least some uncertainties to resolve by waiting to make resource decisions until they truly must be made often helps remove significant risk from the decision compared to the risk of following a plan that is usurped with the passage of time. Again, this shows the wisdom of the Commission’s decision over 30 years ago to focus on the IRP process rather than the plan resulting from an IRP, which is at best directional, not a binding roadmap a utility must follow.

Although some IRP planning inputs are necessarily not fully “real-world” for the reasons explained above, the planning process itself—the modeling and analysis—can indeed provide useful insights to the Commission, Commission Staff, intervenors, and the utility itself. The triennial process of demonstrating how a utility conducts its resource planning and subjecting that planning process to scrutiny and critique has value and benefits all its own. It potentially improves the utility’s processes, allows others to understand better the utility’s processes, and assures customers that their utility is indeed regularly planning with state-of-the-art methods and software to ensure safe and reliable service at the lowest reasonable cost. Also, it allows utilities to update the Commission, Commission Staff, and other parties concerning supply-side and demand-side resource options and developments, including cost, performance characteristics, reliability, and other important data that can inform future resource decisions and help all parties understand the

relative contributions certain technologies can make in a resource mix, as well as their shortcomings. All of these benefits are consistent with the Commission's final order implementing the IRP regulation, and they are consistent with the informal, constructive, non-adversarial nature of IRP proceedings prescribed in the IRP regulation.

Because the value of an IRP is in the process, the Companies welcome process improvements, including improvements to IRP proceedings. One suggestion the Companies offer is to hold an informal technical conference 30 to 60 days after filing in each subsequent IRP proceeding, which should allow adequate time for Commission Staff and parties to the proceeding to review the filing. The purpose of the technical conference would be for the utility to present relevant information from its IRP and then address questions and concerns from the participants in an informal setting that would allow for a freer exchange of ideas than a formal hearing, discovery processes, or back-and-forth written comments. Ideally, such a conference would increase administrative efficiency by reducing the number of discovery requests and quantity and length of written comments. The Companies would gladly participate in and host such informal technical conferences in future IRP proceedings.

But the Companies do not believe pre-filing stakeholder processes are necessary or advisable for reasons the Companies have already provided.¹² Briefly, the IRP proceeding itself is a stakeholder process that has the advantage of having the Commission, not the Companies, determine who is and is not a stakeholder. Adding a pre-filing stakeholder requirement creates redundancy in the process and would likely add to the already considerable time and cost of preparing an IRP (the Companies' personnel routinely invest six to eight months to prepare an IRP and all its supporting materials). Moreover, anyone interested in information such as the

¹² See Companies' Response Comments at 14-15 (May 20, 2022).

Companies' five-year load forecasts and ten-year projected capacity additions on an ongoing and updated basis can obtain it by reviewing the Companies' annual filings in Administrative Case No. 387.¹³ In addition, a pre-filing stakeholder process requirement would add potential difficulties associated with determining who is a stakeholder eligible to participate in any such pre-filing processes. For these reasons, the Companies disagree with the Joint Intervenors' pre-filing stakeholder process recommendation, and they instead suggest that informal post-filing conferences would best advance the goals of the IRP regulation as stated in the Commission's orders.¹⁴

IV. THE COMPANIES' IRP FULLY COMPLIES WITH THE IRP REGULATION AND IMPLEMENTS THE RECOMMENDATIONS OF THE COMMISSION STAFF'S PRIOR REPORTS.

The Joint Intervenors' Supplemental Post-Hearing Comments assert that the Companies' 2021 IRP did not comply with the IRP regulation or prior Commission Staff reports in several respects. The Companies disagree; their 2021 IRP is fully compliant with the IRP regulation and addresses the recommendations from all prior Commission Staff reports.

A. The Companies' Approach to DSM-EE in the 2021 IRP Was Consistent with prior IRPs and Commission Staff Reports.

Contrary to the Joint Intervenors' assertions,¹⁵ the Companies' 2021 IRP is fully compliant with the Commission's IRP regulation regarding future DSM-EE programs, which assertions the

¹³ Available at <https://psc.ky.gov/Case/ViewCaseFilings/20000387/Post>.

¹⁴ See, e.g., Admin. Case No. 308, Order at 13 (Ky. PSC Aug. 8, 1990):

The regulation issued today replaces the draft regulation's requirement for a hearing on each utility's resource plan with a provision allowing for informal conferences between the utility, Staff, and intervenors. ... The Commission believes an informal proceeding, where parties may exchange information and ideas in a less adversarial manner, may better serve the interests of the parties and the resource planning process.

¹⁵ See Joint Intervenors' Supplemental Comments at 20-26 (Aug. 22, 2022).

Companies have previously addressed.¹⁶ Briefly, the Commission’s IRP regulation does require utilities to discuss any new DSM-EE programs they have considered in their IRPs, but it does not require them to formulate and model new DSM-EE programs or to model different possible levels of DSM-EE savings.¹⁷ The Companies’ approach to DSM-EE projections in the 2021 IRP, namely including projected energy and demand savings for their current DSM-EE Program Plan portfolio, which ends in 2025, and then carrying forward 2025 levels of projected DSM-EE savings for the rest of the planning period,¹⁸ is the same approach the Companies took in at least the last two IRPs.¹⁹ Nonetheless, if the Commission Staff recommends that the Companies model DSM-EE programs differently in future IRPs, the Companies will endeavor to follow their recommendations.

B. The Companies’ Approach to Greenhouse Gas Emissions Was Reasonable.

Contrary to the Joint Intervenors’ assertions, the Companies’ 2021 IRP reasonably addressed greenhouse gas emissions risks.²⁰ The Companies have repeatedly addressed their modeling of potential CO₂ regulations and will not repeat the arguments here.²¹ As the Companies have previously stated, if the Commission Staff desires the Companies to model potential CO₂ or other greenhouse gas regulations in particular ways, the Companies will do so.

But the Joint Intervenors’ assertion that the Companies’ 2021 IRP had “limited value and validity” because it did not model methane emissions constraints or pricing, and that not doing so

¹⁶ See Companies’ Response to PSC 1-4(a); Companies’ Response Comments at 45-48 (May 20, 2022); Companies’ Supplemental Post-Hearing Comments at 11-15 (Aug. 22, 2022).

¹⁷ See Companies’ Response to PSC 1-4(a).

¹⁸ IRP Vol. I at 8-20 to 8-26.

¹⁹ Case No. 2018-00348, IRP Vol. I at 8-15 to 8-21 (Oct. 19, 2018); Case No. 2014-00131, IRP Vol. I at 8-29 to 8-35 (Apr. 21, 2014).

²⁰ See Joint Intervenors’ Supplemental Comments at 16-18 (Aug. 22, 2022).

²¹ See, e.g., Companies’ Responsive Comments at 29-32 (May 20, 2022); Companies’ Supplemental Post-Hearing Comments at 2-9 (Aug. 22, 2022).

was “particularly shortsighted with recent passage of the Inflation Reduction Act,” is meritless.²² First, according to the Joint Intervenors’ own comments, the effect of the act presumably will be to increase the cost of natural gas and perhaps coal.²³ The Companies modeled high fuel price scenarios in the 2021 IRP; why prices might increase was and is immaterial.²⁴ That fuel prices increased dramatically *after* the Companies drafted and filed their 2021 IRP was, as even the Joint Intervenors conceded, essentially unforeseeable,²⁵ and it is far from certain that the causes of those increases will persist for the entire IRP planning period.²⁶ Suffice it to say that the Companies’ fuel price forecasts were reasonable at the time the Companies created them (based on Henry Hub forward prices and EIA price projections), and subsequent unforeseeable events do not render those forecasts unreasonable *at the time they were created*.

Second, appealing to the Inflation Reduction Act to assert the 2021 IRP lacked “value or validity” is a spurious argument. To the best of the Companies’ knowledge and according to the hearing logs posted to the Commission’s website, during the hearing in this proceeding—July 12 and 13, 2022, nine months *after* the Companies filed their IRP—there were exactly *zero* mentions of the Inflation Reduction Act.²⁷ Thus, any argument that the Inflation Reduction Act undermines the 2021 IRP in any way is entirely meritless. The Inflation Reduction Act is yet another subsequent unforeseeable event that does not render the IRP unreasonable at the time it was created.

²² Joint Intervenors’ Supplemental Comments at 16-17 (Aug. 22, 2022).

²³ *Id.* at 17-18.

²⁴ *See, e.g.*, IRP Vol. III, Long-Term Resource Planning Analysis at 12.

²⁵ *See* Joint Intervenors’ Supplemental Comments at 18 (Aug. 22, 2022) (“Joint Intervenors acknowledge that fuel and energy prices have been uniquely difficult to forecast in recent years for a number of reasons . . .”).

²⁶ *See, e.g.*, Hearing Video Day 1 at 16:10:46-16:12:00; Hearing Video Day 2 at 10:45:50-10:46:24.

²⁷ Hearing logs available at https://psc.ky.gov/pscscf/2021%20cases/2021-00393//20220818_PSC%20Notice%20of%20Filing%20Hearing%20Documents%20-%20July%2012,%202022.pdf; https://psc.ky.gov/pscscf/2021%20cases/2021-00393//20220818_PSC%20Notice%20of%20Filing%20Hearing%20Documents%20-%20July%2013,%202022.pdf.

C. The 2021 IRP’s Approach to Portfolio Modeling Is Consistent with the IRP Regulation and Commission Staff Reports.

Notwithstanding the Joint Intervenors’ criticism that the 2021 IRP does not provide a single, preferred resource portfolio,²⁸ the Companies’ 2021 IRP does provide an optimized supply-side portfolio for nine fuel and price scenarios and a PVRR for the base-load, base-fuel portfolio.²⁹ That approach is consistent with the IRP regulation and Commission Staff’s prior reports.³⁰ Although the Joint Intervenors are correct that the IRP does not provide the kinds of sensitivity analyses the Companies typically perform when actual investment decisions are at issue, such as in CPCN proceedings for new generating units, the 2021 IRP does provide nine optimized portfolios for alternative scenarios to give a sense of which supply-side options are optimal across various possible futures. Moreover, as part of the collaborative process that the IRP regulation establishes and that worked well in this proceeding, the Companies provided additional analyses as requested to model cases in which there was carbon pricing and no CCS requirement for NGCC. Therefore, both the Companies’ 2021 IRP as filed and their subsequent conduct in providing additional modeling and analysis were consistent with, and show the well-functioning of, the existing IRP regulation and process.

²⁸ See, e.g., Joint Intervenors’ Supplemental Comments at 40-41 (Aug. 22, 2022).

²⁹ IRP Vol. I at 9-1; IRP Vol. III, Long-Term Resource Planning Analysis at 20-22.

³⁰ 807 KAR 5:058 Sec. 9 states in full:

Financial information. The integrated resource plan shall, at a minimum, include and discuss the following financial information:

- (1) Present (base year) value of revenue requirements stated in dollar terms;
- (2) Discount rate used in present value calculations;
- (3) Nominal and real revenue requirements by year; and
- (4) Average system rates (revenues per kilowatt hour) by year.

The Companies’ IRP provides all of that information for its base-load, base-fuel scenario, which the “middle of the road” optimized portfolio. To the best of the Companies’ knowledge, the Commission Staff has not asked the Companies to perform this part of the IRP differently.

V. RESPONSES TO OTHER SPECIFIC CRITICISMS

The Joint Intervenors, Louisville Metro, and Sierra Club raised a number of additional criticisms or concerns in their supplemental post-hearing comments, to which the Companies respond below.

A. The Commission’s IRP Regulation and KRS Chapter 278 Determine What Is Relevant and Jurisdictional in IRP Proceedings, which Does Not Include Externalities or Effects on Particular Customer Groups.

Notwithstanding that the Companies have already stated at length why environmental externalities are not jurisdictional to the Commission and that effects of a given generation portfolio on a particular customer group are not relevant to this proceeding,³¹ the Joint Intervenors’ Supplemental Post-Hearing Comments raise these issues once more.³² Rather than fully recite the relevant arguments here, the Companies state simply that the Commission’s authority is prescribed and circumscribed by KRS Chapter 278, and what is relevant in this proceeding is set forth in 807 KAR 5:058.³³ Those authorities, as interpreted by courts and the Commission, are clear that health and environmental externalities are not jurisdictional to the Commission, and rate impacts of an IRP’s generation portfolio on a particular customer group are not relevant to IRP proceedings under the existing IRP regulation.³⁴ That does not mean that such issues are unimportant, but it

³¹ See, e.g., Companies’ Responses to JI 2-8 and 2-13.

³² Joint Intervenors’ Supplemental Post-Hearing Comments at 26-30.

³³ See, e.g., 807 KAR 5:058 Necessity, Function, and Conformity (“[The IRP regulation] prescribes rules for regular reporting and commission review of load forecasts and resource plans of the state’s electric utilities to meet future demand with an adequate and reliable supply of electricity at the lowest possible cost for *all* customers within their service areas”) (emphasis added).

³⁴ See, e.g., Case No. 2018-00358, Order at 3 (Ky. PSC Jan. 3, 2019), citing *Gainesville Util. Dept. v. Fla. Power Corp.*, 402 U.S. 515, 528 (1971) (“We caution movants that affordability is not a factor that the Commission can consider because KRS 278.170(1) prohibits rates that establish an unreasonable preference between classes of service for doing a like service under the same or substantially the same conditions. Further, the United States Supreme Court has held that a focus on the ability of the customer to pay for utility service is the concern of the utility and not the regulatory agency because the regulatory agency is charged with both assuring the public of reliable, efficient service at a reasonable price and assuring the utility that it may collect fair, just, and reasonable rates.”); Case No. 2017-00441, Order at 28 (Ky. PSC Oct. 5, 2018) (“The Commission has no jurisdiction over environmental impacts, health,

does mean that the General Assembly is the appropriate forum in which to address the Commission's jurisdiction, and a rulemaking proceeding concerning the IRP regulation is the appropriate forum to address what is relevant in future IRP proceedings.

B. Modeling Transmission Costs Is Possible, but It Would Serve Primarily to Increase Certain Resource Costs and Would Likely Make IRP Cost Estimates Less Realistic, Not More So.

First and foremost, the Joint Intervenors' criticism that the Companies' IRP "is inadequate for failing to evaluate wind or solar resources from outside Kentucky" is incorrect and overlooks information in the record in this proceeding.³⁵ The Companies explicitly considered Indiana wind resources and demonstrated that, though Indiana has better wind conditions than Kentucky, transmission costs make Kentucky wind power more cost-effective, which is why the Companies excluded out-of-state wind from their resource planning analysis.³⁶ Regarding out-of-state solar, the Companies noted in discovery that "[s]olar in neighboring states would have a similar capacity factor, but the additional cost of transmitting the power to Kentucky would make out-of-state solar more expensive than in-state solar."³⁷ Therefore, contrary to the Joint Intervenors' assertions, the Companies did indeed explicitly consider out-of-state wind resources and had sound reasons not to consider out-of-state solar resources.

That aside, the Companies can model transmission costs for out-of-state resources if the Commission Staff desires it. But it is important to note that the primary effect of modeling such costs would be to add cost to the values the Companies model for such resources (NREL estimates for such resources are the same regardless of location), and the accuracy of any such costs would

or other non-energy factors that do not affect rates or service,"); Case No. 2004-00103, Order at 82-84 (Ky. PSC Feb. 28, 2005).

³⁵ Joint Intervenors' Supplemental Post-Hearing Comments at 30.

³⁶ IRP Vol. III, 2021 IRP Resource Screening Analysis at 10.

³⁷ Companies' Response to PSC 1-22.

be dubious at best. The Companies do not require RFP respondents to provide transmission costs for their proposals because the Companies have good information about such costs from a *known location* to the Companies' transmission system. The problem with attempting to model transmission costs for resources with unknown locations is that they will necessarily be inaccurate. But again, if the Commission Staff desires the Companies to model such costs, the Companies can and will do so.

C. The Companies' Approach to Scarcity Pricing Did Not Affect the Mix of Supply-Side Resources in the 2021 IRP Portfolios.

The Joint Intervenors' comments indicate an incomplete understanding concerning how the Companies use scarcity pricing in their IRPs.³⁸ Simply stated, the Companies use scarcity pricing in establishing their economic reserve margin, nothing more.³⁹ The Companies do not use scarcity pricing or any other non-firm, as-available energy pricing in their long-term resource planning for the IRP. Moreover, the Companies have demonstrated that changes to the scarcity pricing curve do not have a material impact on their economic reserve margin.⁴⁰ Finally, the Joint Intervenors' use of only a few years of data to question the reasonableness of the Companies' scarcity pricing curve effectively is selective and ignores events in which energy supply has been genuinely scarce, such as during the 2014 polar vortex, during which PJM market prices for power available to the Companies exceeded \$1,700/MWh.⁴¹ Therefore, the Joint Intervenors are mistaken in their criticisms concerning the Companies' approach to scarcity pricing, as well as the effect of those prices on the IRP generation portfolios.

³⁸ See *id.* at 31-35.

³⁹ See IRP Vol. III, Reserve Margin Study at 22-23.

⁴⁰ IRP Vol. III, Reserve Margin Study, Sec. 5.3.

⁴¹ See KU and LG&E FAC Form B filings for January 2014 at page 6, sheet 1 of 1 (Mar. 17, 2014) (showing KU purchases from PJM during three hours at prices from \$1,708.08/MWh to \$1,787.31/MWh).

D. The Companies Adequately Modeled Distributed Generation, and Net Metering Does Not Make Distributed Generation More Cost Effective for All Customers.

The Companies' discussion of their modeling regarding DSM-EE and distributed generation in their Supplemental Post-Hearing Comments addresses the bulk of the Joint Intervenors' criticisms on this issue;⁴² the Companies will not repeat that discussion here.⁴³

But one issue the Joint Intervenors raise deserves additional discussion, namely the idea that although the intervenors concede that distributed solar generation is markedly costlier than utility-scale solar, because net metering customers bear the cost of their solar installations, the cost of those installations is effectively irrelevant.⁴⁴ This is plainly incorrect. If prospective net metering customers are economically rational, they will not invest in solar facilities if they do not think they will at least recover their costs through bill savings and credits. In other words, they will not make the investment if they believe they will not recover their costs. Of course, their cost recovery can come from only one place other than avoided fuel costs: other customers, ultimately. That is precisely why the Companies did not include distributed generation among their supply side resources, and it is why the Companies would not seek to provide more net metering service than current law requires: such service is inconsistent with lowest reasonable cost for all customers. Therefore, there is no merit to the idea that distributed generation could become an economical utility resource because it is owned by certain customers, who then must be compensated by other

⁴² See Joint Intervenors' Supplemental Post-Hearing Comments at 20-26 and 35-38.

⁴³ See, e.g., Companies' Responsive Comments at 45-48 (May 20, 2022); Companies' Supplemental Post-Hearing Comments at 11-15 (Aug. 22, 2022).

⁴⁴ See Joint Intervenors' Supplemental Post-Hearing Comments at 35-36 ("LG&E/KU continue to emphasize that residential rooftop solar is more expensive than utility-scale solar on an LCOE basis. While Joint Intervenors agree this is factually correct, the fact is relevant only if the distributed generation is developed at the utilities' expense, and in the case of net metering, it is not. Customer-owned distributed generation is fundamentally different than utility-scale solar because the customer makes the investment, not the utility.").

customers; an uneconomical resource does not somehow become economical merely because another party owns it, at least if that party is to receive cost recovery.

E. The Companies Will Evaluate Retirement Dates in All Scenarios and Will Model the Entire IRP Planning Period in Future IRPs.

The Companies do not object to evaluating unit retirement dates for all units in all scenarios or to modeling the full IRP planning period in future IRPs.⁴⁵ The Companies believe their approach in the 2021 IRP was reasonable concerning both of these issues, but the Joint Intervenors' recommendations on these issues are also reasonable. Therefore, unless Commission Staff requests otherwise, the Companies will evaluate unit retirement dates for all units in all scenarios and will model the full IRP planning period in future IRPs.

F. Louisville Metro's and the Joint Intervenors' Concerns about Considering NGCC Units in the Companies' Upcoming Supply-Side and Demand-Side Application(s) Is Misplaced.

Louisville Metro and the Joint Intervenors have expressed concern that NGCC units are under consideration in the Companies' current RFP process because none of the 2021 IRP's portfolios included such a unit, but their concern is misplaced for two reasons.⁴⁶ First, the Companies are considering and reviewing many RFP responses, and they have made no resource decisions at this time. Second, the 2021 IRP portfolios did not include NGCC units because the IRP assumed a CCS requirement for such units effectively for the entirety of the 15-year planning period, including the current calendar year, which made the units uneconomical in all scenarios.⁴⁷ But there currently is no such CCS requirement; as the Companies' modeling in response to discovery requests in this proceeding showed, NGCC units were preferable to SCCTs in the

⁴⁵ See Joint Intervenors' Supplemental Post-Hearing Comments at 38-39, 41-42, and 45.

⁴⁶ See Louisville Metro Supplemental Comments at 3; Joint Intervenors' Supplemental Post-Hearing Comments at 11.

⁴⁷ See, e.g., IRP Vol. III, Long-Term Resource Planning Analysis at 5.

absence of a CCS requirement, even with significant carbon pricing.⁴⁸ Therefore, Louisville Metro’s and the Joint Intervenors’ concern that NGCC units are under consideration in the Companies’ current RFP process is entirely misplaced.

G. The Companies’ Solar Intermittency Study Had No Effect on the Companies’ 2021 IRP.

The Joint Intervenors’ post-hearing comments express dissatisfaction with the Companies’ treatment of the Joint Intervenors’ prior discussion of the Companies’ solar intermittency study.⁴⁹ The Companies continue to believe their May 20 Responsive Comments adequately address the issue.⁵⁰ But more importantly, *the Companies’ solar intermittency study had no effect at all on the Companies’ 2021 IRP.* The 2021 IRP did not limit or constrain solar additions, and it did not add system cost related to solar additions, based on the solar intermittency study. The study is therefore perhaps an interesting point of discussion, but it had no bearing at all on the 2021 IRP.

H. The Companies Properly Included OVEC in the 2021 IRP.

The Companies’ Supplemental Post-Hearing Comments addressed most of the OVEC issues raised in Sierra Club’s Post-Hearing Comments;⁵¹ the Companies will not repeat those arguments here.⁵² That notwithstanding, a few additional OVEC-related points raised by Sierra Club deserve comment.

First and most importantly—and most relevantly—the Companies properly included OVEC in its 2021 IRP resource portfolio throughout the 15-year planning period.⁵³ Contrary to

⁴⁸ Companies’ Response to KIUC PHDR 1.

⁴⁹ Joint Intervenors’ Supplemental Post-Hearing Comments at 43-44.

⁵⁰ Companies’ May 20 Responsive Comments at 52-53.

⁵¹ Sierra Club Post-Hearing Comments at 2-7.

⁵² *See, e.g.*, Companies’ Responsive Comments at 43-45 (May 20, 2022); Companies’ Supplemental Post-Hearing Comments at 18-19 (Aug. 22, 2022).

⁵³ *See, e.g.*, IRP Vol. III, Long-Term Resource Planning Analysis at 8-9.

the expectation implicit in Sierra Club's faulty economic analysis,⁵⁴ the OVEC ICPA that the Commission has repeatedly approved (most recently in 2011) does not include a provision that would allow the Companies to exit the ICPA prior to 2040 at no cost.⁵⁵ As the Companies have noted and shown in this proceeding, OVEC energy is frequently economical, and the Companies dispatch OVEC before dispatching Brown Unit 3 and their SCCTs.⁵⁶ Therefore, recalling that the purpose of this proceeding is not to re-litigate the Commission's 2011 approval of the current OVEC ICPA extension but rather to review the Companies' 2021 IRP, there is nothing in the record of this proceeding or Sierra Club's comments to suggest the Companies' inclusion of OVEC in the 2021 IRP was mistaken or improper.

Second, Sierra Club's comments make entirely misleading and incorrect cost comparisons in an attempt to show that OVEC is uneconomical. What Sierra Club characterizes as "the total average cost of operating the two coal-fired power plants of OVEC" is in fact the total average cost of the plants, *including capital costs that have nothing to do with operating the units and do not vary with energy production.*⁵⁷ Comparing that value to the Companies' variable operating costs is an entirely misleading, apples-to-oranges comparison. Similarly misleading is comparing wind or solar energy portfolios to OVEC when the portfolios Sierra Club compares are incapable of producing OVEC's energy profile, which the Companies have addressed at length.⁵⁸ In short, Sierra Club relies on wholly misleading cost comparisons to argue that OVEC is uneconomical. When viewed correctly, as the Companies' demonstrated in their Supplemental Post-Hearing Comments, OVEC remains a cost-effective source of energy for customers.

⁵⁴ See Sierra Club Post-Hearing Comments at 2-3.

⁵⁵ See Case Nos. 2011-0099 and 2011-00100, Order (Ky. PSC Aug. 11, 2011); Case Nos. 2004-00395 and 2004-00396, Order (Ky. PSC Dec. 30, 2004).

⁵⁶ See Companies' Response to SC PHDR 1(a).

⁵⁷ Sierra Club Post-Hearing Comments at 2.

⁵⁸ Companies' Response to SC PHDR 1.

Third, Sierra Club’s comments repeatedly mischaracterize what Mr. Bellar said at hearing regarding OVEC, at least at the times in the hearing Sierra Club cited. For example, Sierra Club’s comments assert:

Mr. Bellar admitted that OVEC is guilty of poor maintenance of its coal-fired power plants, resulting in higher outages than the plants operated by the Companies. He explained that OVEC has deliberately minimized maintenance expenditures, resulting in a high forced outage rate. Bellar testimony, July 13, 2022, at 3:54:48 p.m.⁵⁹

Mr. Bellar made no such “admission”; rather, Mr. Bellar said that OVEC, which does not have load-serving obligations, has sought to minimize maintenance expenditures to maximize the value of the assets, which in turn likely contributes to OVEC’s units having higher forced outage rates than the Companies’ units.⁶⁰ In other words, Mr. Bellar stated that OVEC has sought to make its units as economical as possible, which is hardly the same as “admit[ing] that OVEC is guilty of poor maintenance of its coal-fired power plants.” The Companies would encourage the Commission Staff and others to review for themselves the portions of the video record Sierra Club cites rather than accepting Sierra Club’s characterizations of Mr. Bellar’s testimony.

Finally, the Companies do not object to discussing or analyzing OVEC, but it must be done forthrightly and on a principled basis. Any objective analysis of the Companies’ interest in the OVEC ICPA must acknowledge that the Commission, based on the best information available at the relevant times, approved the OVEC ICPA and its extensions. It must acknowledge that every long-term investment has an element of risk. It must acknowledge that there is no plausible future scenario in which the Companies exit their Commission-approved OVEC obligations at no cost or the Companies’ pro rata obligation under the ICPA for the current OVEC debt somehow

⁵⁹ Sierra Club Post-Hearing Comments at 5.

⁶⁰ See Hearing Video Day 2 at 15:54:48-15:56:44.

disappears. And it must make honest, appropriate cost comparisons, not apples-to-oranges, result-oriented comparisons of the kind Sierra Club's comments repeatedly make. The Companies believe that any such analysis will continue to show that it remains in customers' interest to dispatch OVEC energy on an economic basis, as the Companies have done and continue to do.

I. The Companies' Anticipated Upcoming Supply-Side Resource and DSM-EE Program Plan Application(s) Will Be Properly Timed and Consistent with PPL's Net Zero Carbon Commitment.

Louisville Metro's Supplemental Post-Hearing Comments express concern about the timing of the Companies' anticipated upcoming supply-side resource and DSM-EE Program Plan application(s) and whether the supply-side resource(s) for which the Companies might seek Commission approval would be consistent with PPL's commitment to have net zero carbon emissions by 2050.⁶¹

Regarding the first concern, the Companies are timing their anticipated supply-side and DSM-EE application(s) to ensure adequate resources will be available to meet expected customer demand and to ensure ongoing provision of safe and reliable service at the lowest reasonable cost. Current economic, facility-citing, and supply-chain conditions demonstrate it is risky to assume that past experience with construction timelines can provide a reliable estimate for future construction timelines in the next 3-5 years. In particular, as the Companies' own recent experience with solar PPAs shows, solar resources are proving to be difficult to site,⁶² much less construct, so any solar resource requiring Commission approval that might result from the current RFP process would need to receive such approval as soon as possible to ensure it is available by

⁶¹ Louisville Metro Supplemental Comments at 3-4.

⁶² To the best of the Companies' knowledge, more than 20 solar projects that have received Siting Board approval have not yet been constructed.

2028.⁶³ Similarly, DSM-EE programs can be time-consuming to implement and deploy, and if participation in DSM-EE programs is to remain fully voluntary, it could take a significant amount of time to inform customers about the programs and achieve sufficient participation to meet the needed level of demand reduction by 2028. In addition, because the economics of DSM have changed now that there is an identified capacity need in 2028, it is appropriate to revisit the Companies' DSM-EE Program Plan at this time. Therefore, it is reasonable and prudent for the Companies to seek approval for supply-side and demand-side resources through one or more applications filed by or shortly after the end of this year.

Regarding the second concern, whatever is in the Companies' anticipated supply-side application will be consistent with PPL's commitment to have net-zero carbon emissions by 2050. Notably, as discussed at hearing, PPL's commitment would not preclude adding gas-fired units to the Companies' generating portfolio.⁶⁴

Finally, the Companies appreciate and understand Louisville Metro's stated carbon reduction goals.⁶⁵ The Companies' personnel have consulted with Louisville Metro about those goals and what would be required to achieve them, and the Companies stand ready to consult further with Louisville Metro about how to achieve its goals, including through Green Tariff Option No. 3.

J. Responses to the Joint Intervenors' Recommendations for the Companies' Future IRPs.

The Joint Intervenors provided a list of recommendations at the end of their Supplemental Post-Hearing Comments, to which the Companies respond below:⁶⁶

⁶³ As of September 6, 2022, the Companies' RFP evaluation process is ongoing, and the Companies have not determined for which supply-side resources they will seek approval.

⁶⁴ See, e.g., Hearing Video Day 2 at 17:07:20-17:08:10.

⁶⁵ Louisville Metro Supplemental Comments at 5.

⁶⁶ Joint Intervenors' Supplemental Post-Hearing Comments at 44-46.

1. Stakeholder Process Recommendation

As explained at the beginning of these comments, the Companies do not believe a pre-filing stakeholder process would be feasible or productive. Adding a pre-filing stakeholder process would add to the time and cost required to create each IRP, which is already a six- to eight-month internal process, and it is unlikely to resolve fundamental points of disagreement between the parties to that process (whoever those parties might be; choosing who may participate in any pre-filing stakeholder process is another difficulty). Moreover, the conduct of this proceeding has demonstrated that the existing IRP process provides parties—granted intervention by the Commission—ample opportunity to ask questions, obtain vast amounts of information, and express their views. In addition to the existing IRP process, anyone interested in information such as the Companies’ five-year load forecasts and ten-year projected capacity additions on an ongoing and updated basis can obtain it by reviewing the Companies’ annual filings in Administrative Case No. 387.⁶⁷ As the Companies previously stated, they are amenable to one or more informal technical conferences shortly after filing subsequent IRPs so parties the Commission has admitted to the proceeding may ask questions and offer their views in a non-adversarial, constructive environment. Indeed, the Companies believe it would improve the IRP process to return to a more efficient and informal process overall.

2. Modeling Software Licensing Fees Recommendation

The Companies provided in this proceeding and will provide in all future IRPs all data necessary for other parties to perform their own modeling runs. Therefore, the real thrust of this recommendation is that the Companies should use their bargaining ability to obtain discounts for other parties or simply shoulder the cost for others’ licensing fees. The Companies respectfully

⁶⁷ Available at <https://psc.ky.gov/Case/ViewCaseFilings/20000387/Post>.

decline this over-reaching invitation for three reasons: first, no party to this proceeding identified errors in the Companies' actual modeling itself;⁶⁸ second, the training and experience needed to run these models typically takes years to acquire before achieving proficiency, so providing a software license to untrained personnel is unlikely to be fruitful, and any person or entity with sufficient training and expertise to use the software effectively is likely to have access to the software without needing the Companies to acquire a license; and third, the Companies have already committed to perform an additional modeling run for each party and the Commission Staff upon request, which will likely be much more efficient than having other parties attempt to re-run the Companies' models without the Companies' experience and expertise.⁶⁹

3. Data Provision Recommendation

The Companies committed as part of their modeling transparency filing in their most recent rate cases to provide in all future cases all of the data the Joint Intervenors request in this recommendation.⁷⁰

4. Using Single Model for Capacity Expansion and Production Cost Modeling Recommendation

All models have strengths and weaknesses. The Companies' goal is to use the best model for a given task. At the moment, using both PROSYM and Plexos is the best approach for the Companies. The Companies have developed significant expertise and flexibility in PROSYM to model uncertainty; therefore, using only Plexos at this time would reduce the quality of the Companies' analysis and decision-making. The Companies therefore disagree with this

⁶⁸ See Companies' Responsive Comments at 34 (May 20, 2022); Joint Intervenors Comments Exh. 1 at 21.

⁶⁹ Case Nos. 2020-00349 and 2020-00350, Companies' 2020 Rate Case Response to September 24, 2021 Ordering Paragraphs 9 & 10 at 4 (Dec. 22, 2021).

⁷⁰ *Id.*

recommendation, though it is possible that the Companies will move to using a single modeling tool in the future.

5. Modeling Entire Planning Period Recommendation

As the Companies discussed previously in these comments, they will model the entire planning period in future IRPs unless Commission Staff requests otherwise.

6. Documenting Analytical Work Recommendation

The Companies agree with this recommendation and will endeavor to make their work more easily comprehensible for outside parties in future proceedings.

7. Out-of-Model Adjustments and System Costs Recommendation

The Companies already do this and will continue to do so in future proceedings.

8. DSM and DER Modeling Recommendation

The Companies' May 20 Responsive Comments and their recently filed Supplemental Post-Hearing Comments already fully address this recommendation with the exception of distributed solar with storage, which the Companies will evaluate in future IRPs.⁷¹

9. Carbon Pricing and Emissions Recommendation

The Companies have already stated (and demonstrated) that they can and will model any number of carbon scenarios the Commission Staff recommends.

10. Ending Use of Equivalent Load Duration Curve Model ("ELDCM") Recommendation

The Companies disagree with this recommendation for the reasons stated at length in their May 20 Responsive Comments.⁷² The Companies demonstrated in those comments that ELDCM is an effective tool for evaluating the reliability impacts of variable resources like solar and that

⁷¹ Companies' Responsive Comments at 45-48 (May 20, 2022); Companies' Supplemental Post-Hearing Comments at 11-15 (Aug. 22, 2022).

⁷² Companies' Responsive Comments at 40-41 (May 20, 2022).

the Companies’ use of ELDCM in concert with the Strategic Energy Risk Valuation Model (“SERVM”) was appropriate.

11. Low-Income Customer Impacts Recommendation

For the reasons stated above, the Companies cannot agree to a recommendation to focus on projected IRP effects on particular customer groups because it would be inconsistent with the IRP regulation and the Commission’s precedent.⁷³

12. Informal Conference or Data Requests regarding the Inflation Reduction Act Recommendation

The Companies disagree with this recommendation. As stated above, the Companies acknowledge that the Inflation Reduction Act may affect resource planning, and the Companies will address those effects in their anticipated supply- and demand-side application(s), as well as in future IRPs. But as the Commission Staff has recently stated, IRPs are snapshots in time;⁷⁴ they are not and cannot become perpetual proceedings. There are and always will be developments after a utility files an IRP that, had they occurred prior to filing, could have affected the IRP, especially if the time frame for addressing such subsequent events stretches to eight months or more after filing. Respectfully, these proceedings must end on reasonable timeframes so the parties—and the Commission Staff—can move on to other important matters. Now is the time to conclude this proceeding.

⁷³ See, e.g., 807 KAR 5:058 Necessity, Function, and Conformity (“[The IRP regulation] prescribes rules for regular reporting and commission review of load forecasts and resource plans of the state’s electric utilities to meet future demand with an adequate and reliable supply of electricity at the lowest possible cost for *all* customers within their service areas”) (emphasis added); Case No. 2018-00358, Order at 3 (Ky. PSC Jan. 3, 2019), citing *Gainesville Util. Dept. v. Fla. Power Corp.*, 402 U.S. 515, 528 (1971) (“We caution movants that affordability is not a factor that the Commission can consider because KRS 278.170(1) prohibits rates that establish an unreasonable preference between classes of service for doing a like service under the same or substantially the same conditions. Further, the United States Supreme Court has held that a focus on the ability of the customer to pay for utility service is the concern of the utility and not the regulatory agency because the regulatory agency is charged with both assuring the public of reliable, efficient service at a reasonable price and assuring the utility that it may collect fair, just, and reasonable rates.”); Case No. 2004-00103, Order at 82-84 (Ky. PSC Feb. 28, 2005).

⁷⁴ *Electronic 2021 Integrated Resource Plan of Duke Energy Kentucky, Inc.*, Case No. 2021-00245, Order Appx. at 32 (Ky. PSC May 10, 2022) (“[T]he IRP is simply a triennial snapshot in time”).

VI. CONCLUSION

The Companies respectfully submit that the IRP process regarding the 2021 IRP has worked well. Parties to this proceeding have had ample opportunity to review, question, and comment upon the 2021 IRP, and as the Companies have noted above, the Companies agree with a number of the intervenors' suggestions regarding future IRPs. But agreeing on possible improvements does not mean that the 2021 IRP does not fully satisfy the letter and objective of the Commission's IRP regulation, as well as the recommendations of past Commission Staff reports on the Companies' previous IRPs; indeed, the 2021 IRP does just that. The Companies suggest that this already well-functioning process could improve by introducing a *post-filing* informal technical conference to allow all parties to ask questions and exchange ideas in a constructive, non-adversarial environment, but they further believe that introducing a *pre-filing* stakeholder process would likely serve only to add to the cost and time required to prepare an IRP, in addition to difficulties in determining who may participate in such a process. Finally, although this has been a well-functioning process, it is time for it to conclude, and no further conferences or discovery requests are required regarding events that occurred ten months *after* the Companies filed their 2021 IRP; rather, in accordance with the IRP regulation and the Commission's most recent procedural schedule, it is time to end this proceeding with the Commission Staff's report and the parties' comments thereon.

Dated: September 6, 2022

Respectfully submitted,




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CERTIFICATE OF COMPLIANCE

In accordance with the Commission's Order of July 22, 2021 in Case No. 2020-00085 (Electronic Emergency Docket Related to the Novel Coronavirus COVID-19), this is to certify that the electronic filing has been transmitted to the Commission on September 6, 2022; and that there are currently no parties in this proceeding that the Commission has excused from participation by electronic means.



Harold R. Rigg
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Louisville Gas and Electric Company