

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In The Matter Of: :
AN ELECTRONIC 2022 INTEGRATED RESOURCE : **Case No 2023-00092**
PLANNING REPORT OF KENTUCKY POWER COMPANY :
:

**COMMENTS OF
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.**

Kentucky Industrial Utility Customers, Inc. (“KIUC”) submits the following Comments on Kentucky Power Company’s (“Kentucky Power” or “Company”) 2022 Integrated Resource Plan (“IRP”). While utility IRPs are always non-binding and do not result in a formal Commission Order, Kentucky Power’s IRP in this case is particularly non-definitive given the Commission’s pending show cause investigation¹ and the Requests for Proposals (“RFPs”) recently issued by the Company.

Kentucky Power’s Preferred Plan includes:²

- Big Sandy Extension through mid-2041
- 48 MW of Demand-Side Management Resources between 2023-2027
- 70-80 MW of short-term capacity purchases through 2026
- 407 MW of short-term capacity purchases in 2028
- 480 MW of new natural gas Combustion Turbine (“CT”) peaking units in 2029
- 50 MW of 4-hour lithium-ion battery storage in 2035
- 700 MW of new out-of-state wind by 2037
- 800 MW of new solar by 2037

While KIUC supports the Company’s proposed Big Sandy Extension, DSM approach, and short-term capacity purchases through 2026, KIUC takes issue with several other aspects of the Kentucky Power’s Preferred Plan.

¹ *In the Matter of the Electronic Investigation of the Service, Rates and Facilities of Kentucky Power Company*, Case No. 2021-000370, Order (June 23, 2023).

² IRP at 14-15.

I. Kentucky Power's Preferred Plan Introduces Several Material Risks for Customers Beginning In 2028.

One major issue surrounding Kentucky Power's IRP is how the Company will ensure that it can provide adequate generation at a reasonable cost to customers in 2028 and beyond. As the Commission is well-aware, the Company is already experiencing service adequacy issues.³ The proposed IRP may only exacerbate these problems. Kentucky Power's plan to rely on 407 MW of market capacity purchases beginning in 2028 introduces real questions about potential rate impacts to customers. Under a capacity-only purchase, the Company would have no energy hedge, instead relying entirely upon the market for energy. The Company's Preferred Plan therefore introduces significant risks for customers by subjecting them to unhedged energy market pricing for much of 2028.

Moreover, Kentucky Power's energy and capacity entitlement to 50% of the 780 MW Mitchell 1 and 50% of the 780 MW Mitchell 2 extends at least until the *end* of 2028.⁴ It is therefore unnecessary to engage in large capacity purchases to replace Mitchell during 2028. The Company's assumption that its entitlement to Mitchell energy and capacity ends on June 1, 2028 (the beginning of the PJM Planning Year) is incorrect. Until Kentucky Power legally transfers its 50% Mitchell ownership interest to Wheeling Power or some other entity, Kentucky Power will remain the legal owner of half of the plant.

Kentucky Power's proposal to rely on out-of-state wind, solar, and new gas CT units to address its capacity shortfall beyond 2028 rather than considering purchases from existing thermal units potentially available to the Company is likewise risky. As utilities throughout the

³ *In the Matter of the Electronic Investigation of the Service, Rates and Facilities of Kentucky Power Company*, Case No. 2021-000370, Order (June 23, 2023).

⁴ *In the Matter of Electronic Application of Kentucky Power Company for Approval of Affiliate Agreements Related to the Mitchell Generating Station*, Order, Case No. 2021-00421 (May 3, 2022); *In the Matter of Electronic Application of Kentucky Power Company for Approval of a Certificate of Public Convenience and Necessity for Environmental Project Construction at the Mitchell Generating Station...* Order, Case No. 2021-00004 (July 21, 2021).

country retire coal units in response to federal environmental regulations, the market for thermal generation resources is becoming increasingly tight. Indeed, there are only three manufacturers available to utilities interested in constructing new natural gas units (General Electric, Siemens, and Mitsubishi). This ever-tightening market introduces a significant risk that new natural gas units may not be constructed within the requisite timeframe – and at a reasonable cost to customers.

In light of these risks, Kentucky Power should consider leveraging existing generation resources to serve its customers. For example, Kentucky Power could explore securing an agreement to sell its 50% ownership interest to Wheeling Power, and then buy back energy and capacity from the Mitchell units beyond 2028. After 2028, Kentucky Power will still be a 50% owner of Mitchell. The Commission has twice expressly recognized that the transfer price for the Company's 50% ownership interest will be approximately net book value,⁵ but Kentucky Power and Wheeling Power have thus far failed to reach agreement on that pricing.

The Company could also explore purchasing capacity beyond 2028 from Kentucky Utilities Company's 495 MW Ghent Unit 2, which is a large, highly efficient coal unit with low fuel costs, low forced outage rates, and low fixed and variable O&M costs. Because Mitchell and Ghent Unit 2 have higher capacity values (ELCC) than the renewable generation included within Kentucky Power's Preferred Plan, the amount of capacity needed to be acquired in order to serve the Company's territory (which has a peak demand of about 1,100 MW and an average demand of about 650 MW) would decrease from the amount required under Kentucky Power's Preferred Plan. The costs to customers may also be lower under that approach since while renewable

⁵ *In the Matter of Electronic Application of Kentucky Power Company for Approval of Affiliate Agreements Related to the Mitchell Generating Station*, Order, Case No. 2021-00421 (May 3, 2022); *In the Matter of Electronic Application of Kentucky Power Company for Approval of a Certificate of Public Convenience and Necessity for Environmental Project Construction at the Mitchell Generating Station...* Order, Case No. 2021-00004 (May 3, 2022).

generation has essentially no variable (fuel) cost, it necessitates higher capital costs and increased transmission and interconnection costs.

Kentucky Power recently issued three RFPs for Generation Resources seeking approximately 875 MW of PJM-accredited summer capacity and 1300 MW of PJM-accredited winter capacity from solar, wind, coal, gas, and standalone storage resources. While the timeframe for responses to the Company's RFPs is tight (responses are due November 8), the results of those RFPs may provide real-world options and pricing to guide future generation planning.

II. Kentucky Power Did Not Properly Model The Inclusion of a Natural Gas Combined Cycle.

As part of its IRP, and in response to stakeholder feedback, Kentucky Power modeled a 418 MW Natural Gas Combined Cycle Portfolio ("CC Portfolio") under which a Natural Gas Combined Cycle ("NGCC") was assumed to be built in 2029 in place of a CT. That scenario included 700 MW of out-of-state wind, 800 MW of solar, 50 MW of storage by 2037, extension of Big Sandy 1 through 2041, and short-term market purchases from 2026 through 2028.⁶ But Kentucky Power's modeling of the CC Portfolio may have been flawed.

In modeling the CC Portfolio, it appears that the Company assumed the addition of the wind and solar resources prior to the addition of the NGCC resource. By adding out-of-state wind and solar first, the Company satisfied most of its energy needs, and the model then concluded that the high capital cost/low energy cost NGCC was uneconomic. Assuming the 700 MW of out-of-state wind resources have a capacity factor of 35%, those resources would generate 2,146,200 MWh of energy annually.⁷ Assuming the 800 MW of solar resources in the CC Portfolio have a capacity factor of 25%, those resources would generate 1,752,000 MWh of

⁶ IRP at 159-160.

⁷ 700 MW x 8760 hours per year x 0.35 capacity factor.

energy annually. Between the solar and wind resources, this results in 3,898,200 MWh of annual energy. Given that Kentucky Power's total retail load is approximately 5,300,000 MWh and that the NGCC was stacked on top of the wind and solar resources, it appears that the Company's modeling approach undermined the need for the NGCC unit.

The Company should have put the NGCC unit first in the stacking order, and then satisfied remaining native load energy needs with Big Sandy 1, solar, and market purchases. Because of its low heat rate, low forced outage rate, and high reliability, the expected NGCC capacity factor would be approximately 80%. At an 80% capacity factor, the NGCC would provide more than half of Kentucky Power's annual retail energy requirements.⁸ And a 418 MW NGCC built at the site of the retired 800 MW Big Sandy 2 coal plant would require minimal additional transmission infrastructure, if any. At least one gas transportation pipeline already serves that site. Thus, had the modeling been conducted differently, the recommended approach may have included an NGCC.

Kentucky Power should be required to more fairly consider the NGCC alternative. As designed, the Company's Preferred Plan includes: 1) renewable resources that provide significant energy value but provide little capacity value that may only decrease further as more solar capacity is added to PJM; and 2) a natural gas CT that provides significant capacity value to the system, but not significant energy value due to its high heat rate. An NGCC may solve both issues, providing substantial energy and capacity value to the system.

⁸ 418 MW x 8760 hours per year x 0.80 capacity factor = 2,929,344 MWh.

Respectfully submitted,

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