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

In the Matter of:

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| ELECTRONIC 2023 INTEGRATED | ) | |
| RESOURCE PLAN OF BIG RIVERS | ) | CASE NO. 2023-00310 |
| ELECTRIC CORPORATION | ) | |

# POST-HEARING SUPPLEMENTAL COMMENTS OF JOINT INTERVENORS KENTUCKIANS FOR THE COMMONWEALTH AND KENTUCKY RESOURCES COUNCIL


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## I. INTRODUCTION

As detailed in Joint Intervenors' initial comments, Big Rivers Electric Corporation's ("Big Rivers") 2023 Integrated Resource Plan[1] is disappointingly a status quo document that fails to reasonably evaluate, much less plan to pursue, a cleaner, more affordable, and more reliable energy portfolio. However, Big Rivers announced at the hearing that the Company was no longer relying on the 2023 IRP but, instead, had initiated a new strategic planning process in which it is "going to take a fresh look at everything."[2] Joint Intervenors welcome this development, as the 2023 IRP should not be relied on as support for significant resource decisions, such as the new natural gas combined cycle ("NGCC") plant in 2029 proposed therein or the continued operation of the Wilson plant until 2045.

As such, Joint Intervenors urge Commission Staff to take full advantage of Big Rivers' intent to "start afresh" and require the Company to promptly address in this docket, as well as all future IRP proceedings, the significant flaws and shortcomings in the 2023 IRP previously identified by Joint Intervenors and further discussed below. In particular, Joint Intervenors recommend:

- Given Big Rivers' failures to adequately pursue relevant federal funding opportunities, Staff should require the Company to promptly file a thorough evaluation of all the available opportunities for grants, loans, and other financial assistance under the 2022 Inflation Reduction Act ("IRA") and 2021 Bipartisan Infrastructure Law ("BIL"), including identification of which opportunities the Company plans to pursue and why.

- Staff should also require Big Rivers to promptly file in this docket, and be required to file in future IRP proceedings, an analysis of energy efficiency potential that (1) addresses the numerous flaws in the Company's demand-side management ("DSM") market potential study ("MPS") attached to the 2023 IRP that were previously identified by Joint Intervenors and their consultant, Energy

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[1] Case No. 2023-00310, Big Rivers Electric Corp., *Big Rivers 2023 Integrated Resource Plan* (Sept. 29, 2023) ("Big Rivers 2023 IRP" or "2023 IRP").
[2] May 22, 2024 HVT at 1:31 p.m.

Futures Group ("EFG"), (2) ensures that any modeling is of an achievable potential scenario rather than the arbitrarily selected $1 million program scenario, and (3) explains when and how Big Rivers plans to pursue cost-effective energy efficiency programs, and a justification for any decision not to do so.

- Given Big Rivers' failures to adequately analyze the environmental costs and risks of complying with new federal regulations, Staff should direct the Company not only to discuss in its next IRP whether additional compliance investments will be needed to comply with the applicable federal requirements, but also to file the different analyses of new federal regulations that were discussed at the hearing in the docket of this proceeding promptly upon the completion of each analysis.

- Given the 2023 IRP's apparent plan to "build and hold" significantly more capacity than needed to serve its native system load, Staff should require Big Rivers to evaluate a range of future loads, especially as it pertains to the Direct Serve class, and provide an analysis showing whether the costs of serving its non-member sales contracts have provided or would provide a net benefit to the Company's members.

- Finally, Big Rivers should evaluate through modeling multiple potential retirement dates for its existing Wilson and R.D. Green units and ensure that new supply-side resources are not unreasonably foreclosed from being selected in its modeling to fill future energy or capacity needs.

## II. BIG RIVERS SHOULD PROVIDE AN EVALUATION OF FEDERAL FINANCIAL OPPORTUNITIES AND A PLAN TO FULLY PURSUE THEM.

As Joint Intervenors discussed in their initial comments, the IRA and the BIL[3] made an unprecedented amount of federal financial assistance available to utilities, and especially rural electric cooperatives, to rebuild and transition their systems to clean energy while reducing costs for utility customers.[4] While much of this financial support is provided through federal tax credits for solar, storage, and wind projects, a significant portion is available through competitive grants and low- or no-interest loans that utilities must apply to receive. As Big Rivers' witness Mathews agreed at hearing, "pursuing these opportunities is an important way to protect

[3] The BIL is also known as the Infrastructure Investment and Jobs Act ("IIJA").
[4] Case No. 2023-00310, Joint Intervenors, *Comments of Joint Intervenors Kentuckians For The Commonwealth and Kentucky Resources Council*, at 16–17 (Mar. 8, 2024) ("JI Comments").

customers and to limit their bills."[5] Yet, as detailed in Joint Intervenors' initial comments, with the exception of reference to a laudable solar and storage proposal under the Powering Affordable Clean Energy ("PACE") program and a misguided and costly carbon capture and sequestration ("CCS") proposal under the Empowering Rural America ("NewERA") program, the 2023 IRP was largely devoid of any discussion of federal financial opportunities, and Big Rivers' pursuit of such opportunities has been extremely limited and flawed.[6] Notably, Big Rivers in its Response to Comments [7]did not dispute any of these critiques, or even attempt to argue that it had fully pursued the cost-saving opportunities presented by the IRA and BIL.

Big Rivers' failure in this regard was further elucidated at the 2023 IRP hearing. The Company's primary witness on the issue, Dr. Talina Mathews, conceded that Big Rivers had not undertaken any written evaluation of the opportunities under the IRA and BIL, claiming variably that the Company had "not had time to do that in the middle of the transition" to new management, or lacked resources to do so.[8] Dr. Mathews had also not evaluated Big Rivers' eligibility for funding under the U.S. Department of Energy's Energy Infrastructure Reinvestment program,[9] and did not know if Big Rivers is eligible for the Rural Energy for America Program.[10] When asked about Big Rivers' assertion in discovery that it was "continually reviewing" federal financial opportunities,[11] Dr. Mathews mentioned only Company staff watching webinars in order to try "to keep up with the programs."[12] She could not identify

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[5] May 22, 2024 HVT at 11:44 a.m.
[6] JI Comments at 17–24.
[7] Case No. 2023-00310, Big Rivers Elec. Corp., *Big River Electric Corporation's Response to Intervenor Comments* (Mar. 29, 2024) ("Big Rivers Response to Intervenor Comments").
[8] May 22, 2024 HVT at 11:48 a.m. to 1:04 p.m.
[9] May 22, 2024 HVT at 12:09 p.m.
[10] May 22, 2024 HVT at 1:18 p.m.
[11] Big Rivers Responses to Joint Intervenors Request Nos. 1-14, 1-15.
[12] May 22, 2024 HVT at 11:49 a.m.

who at Big Rivers is responsible for keeping up with the IRA and BIL programs, but confirmed that there is no written documentation of the Company's purported continual review of such opportunities, nor is any specific person at Big Rivers charged with deciding whether to apply for funding under the federal programs.[13] In short, with exception of the aforementioned PACE and NewERA applications, the evidence at the hearing paints the picture of a Company asleep at the wheel when it comes to the unprecedented federal financial opportunities that could and should be pursued under the IRA and BIL.

Big Rivers stated at the hearing that the PACE project is still on hold, and has not been submitted to the MISO interconnection queue because the Company still has not met the requirement for site control, and had identified a site but does not have control or any options on the property.[14] Big Rivers also announced at hearing that it has withdrawn its NewERA proposal, which had sought financial assistance for a $2.5 billion CCS project at the Wilson plant.[15] As Joint Intervenors explained in their initial comments, the Letter of Intent ("LOI") for the NewERA program that Big Rivers had submitted to the Rural Utilities Service ("RUS") was flawed and the Wilson CCS proposal was misguided at best.[16] As such, Joint Intervenors are glad to see that proposal withdrawn.

At the same time, Big Rivers' handling of the NewERA program represents another major failure by the Company to maximize the federal cost-saving opportunities available to it. The NewERA program provided for likely the largest single piece of federal financial assistance that Big Rivers could have obtained – up to $970 million in grants and low- or zero-interest

[13] May 22, 2024 HVT at 11:49 to 11:51 a.m.
[14] May 22, 2024 HVT at 5:44 to 5:46 p.m.
[15] May 22, 2024 HVT at 12:04 to 12:06 p.m.
[16] JI Comments at 19–23.

loans. Yet, within eight months of submitting its LOI, Big Rivers withdrew the proposal for reasons that the Company could and should have determined before submission. In explaining the withdrawal, Dr. Mathews claimed that carbon capture technology is not available from vendors today, that it would not be feasible to achieve 90% capture by the deadline for doing so under the NewERA program, and that the estimated $4 billion cost for the CCS project was too high.[17] But the deadline for completion of the project was clearly set forth in the RUS's notice of funding opportunity and frequently asked questions document about the program.[18] Similarly, there is no reason to think that carbon capture technology is less available from vendors now than it was when Big Rivers submitted its LOI in September 2023. It is true that the $4 billion cost for the Wilson CCS project cited at hearing is higher than the $2.5 billion cost referenced in the LOI. But in response to Staff Post-hearing data request No. 3, Big Rivers cited as the basis for that $4 billion cost estimate, studies by Sargent & Lundy for the U.S. Energy Information Administration and the U.S. EPA that were completed in February 2020 and March 2023, respectively, and that were relied on as the basis for CCS and other cost estimates in the 2023 IRP.

At this point, the deadline to submit an LOI for NewERA funding has passed. As such, it would appear that Big Rivers has missed the opportunity to obtain as much as $970 million in federal financial assistance because it decided to pursue a multi-billion-dollar CCS project that it has determined, based on information that was publicly available before it submitted the LOI, is

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[17] May 22, 2024 HVT at 12:04 to 12:06 p.m.

[18] U.S. Dep't of Agric. Rural Utils. Serv., *Notice of Funding Opportunity for the Empowering Rural America (New ERA) Program*, 88 Fed. Reg. 31,218, 31,221 (May 16, 2023); U.S. Dep't of Agric., *Frequently Asked Questions: Empowering Rural America (New ERA) Program – Version 8.0*, at 8 (Sept. 12, 2023), https://www.rd.usda.gov/media/file/download/new-era-faqs-v8-09132023.pdf. It is important to note that while Dr. Mathews cited at hearing a 2028 or 2029 deadline for completion of the project, the actual deadline is Sept. 30, 2031. *Id.*

not available or feasible. Big Rivers could have sought NewERA funding for a wide array of potential projects that are readily available and feasible, including renewable energy systems, zero-emission systems, energy storage, microgrids and distributed energy strategies, transmission improvements, and energy demand reduction.[19] When asked why Big Rivers instead decided to pursue funding for a technology that it believes is not available, Dr. Mathews' response was simply "I can't answer that question."[20]

Fortunately, some federal funding opportunities remain open. For example, funds are available under the Energy Infrastructure Reinvestment program until September 30, 2026.[21] At hearing, Dr. Mathews testified that Big Rivers is applying for "GRIP"[22] funding, and witness Wright noted that he thinks there is "federal funding available under the IRA for potential energy efficiency" that they would explore.[23] These and a litany of other potential federal financial opportunities are plainly relevant to core requirements of Kentucky's IRP process, including that the utility provide an "assessment of potentially cost-effective resource options available to the utility," and a plan "to meet forecasted electricity requirements at the lowest possible cost."[24] As such, Joint Intervenors urge Staff to require Big Rivers to provide a thorough evaluation of all of the available opportunities for grants, loans, and other financial assistance under the IRA and BIL, including identification of which opportunities the Company plans to pursue and why. In

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[19] 88 Fed. Reg. at 31,223.
[20] May 22, 2024 HVT at 12:08 p.m.
[21] U.S. DOE, *Loan Guarantees for Clean Energy Projects*, 88 Fed. Reg. 34,419, 34,421 (May 30, 2023).
[22] May 22, 2024 HVT at 11:46 a.m. Dr. Mathews was presumably referring to the Grid Deployment Office, *Grid Resilience and Innovation Partnership (GRIP) Program*, https://www.energy.gov/gdo/grid-resilience-and-innovation-partnerships-grip-program (last accessed June 26, 2024).
[23] May 22, 2024 HVT at 7:53 p.m.
[24] 807 KAR 5:058 Section 8(1).

addition, given that many of these opportunities have upcoming deadlines by which applications must be submitted, and the relevance of such opportunities to Big Rivers' stated intent to "start afresh" with its resource planning, the Company should be required to promptly file such analysis of federal financial opportunities in this docket. Doing so would help ensure the transparency and prudent planning that the IRP process is intended to encourage, but that has been missing here as a result of Big Rivers' failure to date to fully evaluate and report on its opportunities under the IRA and BIL.

## III. BIG RIVERS SHOULD MODEL SIGNIFICANTLY HIGHER LEVELS OF ENERGY EFFICIENCY AND PROVIDE A PLAN TO PURSUE IT.

Another area where Big Rivers is leaving significant amounts of cost-savings for its customers on the table is energy efficiency. As detailed in Joint Intervenors' initial comments, the DSM MPS that accompanied the 2023 IRP found an achievable potential of 10% of cumulative energy savings over 10 years from energy efficiency programs.[25] Using the Total Resource Cost ("TRC") test, which evaluates the benefits and costs of energy efficiency programs to all utility customers (both participants and non-participants) in the service territory,[26] the MPS found that achieving such potential would provide a 3-to-1 benefit-cost ratio.[27] In addition, as demonstrated by a report from Energy Futures Group ("EFG Report") submitted by Joint Intervenors, the MPS included at least eight flaws, the correction of which would almost certainly show a significantly higher achievable potential and benefit-cost ratio

[25] Big Rivers 2023 IRP at 79.
[26] *Id.*, Appendix B at 1–6.
[27] Big Rivers Response to Joint Intervenors Request No. 1-30.

than found in the MPS.[28] Despite such clear demonstration of net benefits that Big Rivers could achieve, the Company did not include any energy efficiency in its proposed resource plan.

Big Rivers' Response to Comments was entirely silent on the topic of energy efficiency. The Company did not acknowledge, much less attempt to refute, the EFG Report's critique of the MPS. Nor did the Company offer any justification for its failure to include energy efficiency program in its proposed resource plan, explain why it was not pursuing the benefits that such energy efficiency offers, or state whether or when it would propose such programs.

At hearing, Big Rivers witness Terry Wright acknowledged that the Company's own potential study showed that increased spending on DSM programs would benefit its customers.[29] Despite such benefits, witness Wright acknowledged that Big Rivers does not have any plans to make any DSM filings with the Commission and, instead, that the Company is simply "exploring options" around DSM.[30] Big Rivers took a very similar approach in its 2020 IRP, in which the Company proposed to simply continue evaluating energy efficiency programs after its potential study found that significant savings could be achieved and benefits provided from such programs.[31] It is unclear what further exploration is needed for Big Rivers to propose energy efficiency programs that its own analyses show would provide far more benefits than costs and that utilities throughout the country have been implementing for decades. But every year of additional exploration is another year in which Big Rivers' customers are being deprived of the cost-saving benefits that energy efficiency would provide.

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[28] JI Comments at 11–12; *id.*, attached Ex.1, C. Hotaling and D. Mellinger, *Report on Big Rivers Electric 2023 Integrated Resource Plan*, at 26–41 (March 8, 2024) ("EFG Report").
[29] May 22, 2024 HVT at 7:06 p.m.
[30] May 22, 2024 HVT at 7:06 p.m.
[31] JI Comments at 14.

At hearing, witness Wright contended that Big Rivers has not pursued energy efficiency because the Company's 2023 IRP modeling identified a NGCC plant as the least cost resource for meeting its future needs, and because energy efficiency alone could not fill that future need.[32] Such argument fails for a few reasons. First, other Big Rivers witnesses made clear that the Company is no longer planning to proceed with a new NGCC plant based on this 2023 IRP and, instead, is embarking on a "fresh start" analysis of its next generation resources. Second, even if a new gas plant (or some other large new resource) ended up being needed in 2029, which is far from established in this record, it does not foreclose pursuing energy efficiency now. Big Rivers claims that the energy efficiency would be an "incremental cost" on top of the gas plant,[33] but the MPS (and the EFG Report) clearly establish that energy efficiency would be a net benefit, not cost, to customers. It simply makes no sense for Big Rivers to pass up providing a three-to-one benefit for its customers now simply because five or more years from now it might need to build some other generation resource.

Third, Big Rivers' modeling says nothing about the cost effectiveness of the achievable energy efficiency potential identified in the MPS because the Company only let the model consider an energy efficiency program capped at $1 million per year. At hearing, Big Rivers was not able to justify that $1 million cap, which apparently was used in this proceeding simply because it has been used in past IRPs.[34] Regardless, 2023 IRP modeling that did not even consider the achievable energy efficiency potential scenario certainly does not overcome the clear evidence in the MPS (and EFG Report) that such scenario would provide significant net benefits to customers.

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[32] May 22, 2024 HVT at 7:31 to 7:32 p.m. and at 7:46 to 7:48 p.m.
[33] May 22, 2024 HVT at 7:31 p.m.
[34] May 22, 2024 HVT at 7:51 p.m.

DSM will apparently be one of the options that Big Rivers will look at as part of its "fresh start" analysis of its next generation resources.[35] While witness Wright testified that such analysis would primarily focus on demand response programs, he stated that the Company would explore potential energy efficiency programs "subject to us being able to get free money" from IRA programs.[36] As discussed in Section II above, Big Rivers should definitely evaluate and pursue all available federal financial opportunities for energy efficiency (and demand response). But given the substantial net benefit of energy efficiency for its customers, there is no reason for Big Rivers to only pursue those programs if they are able to get "free money" under the IRA or BIL. Instead, they should be pursuing them as expeditiously as possible.

As witness Russell Pogue acknowledged in response to questions at the hearing, Big Rivers' only current DSM program is a pilot Low-Income Weatherization Program.[37] That program is designed to provide supplemental funding to residential members who have sought assistance from a Community Action Agency but whose homes were placed on a deferred list because they were deemed not ready for the program.[38] Big Rivers has had very low participation in this program in recent years, however, including no participants last year, due to the availability of federal funding sources that have filled the same need.[39] Mr. Pogue acknowledged that Big Rivers had not considered proposing any alternative program designs, including programs that were designed to reach customers outside of the Community Action

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[35] May 22, 2024 HVT at 7:53 p.m.
[36] May 22, 2024 HVT at 7:53 p.m.
[37] Big Rivers Response to Staff Request No. 2-2; Big Rivers Response to AG Request No. 1-18; May 22, 2024 HVT at 10:34 p.m. to 10:38 p.m.
[38] Big Rivers' Response to AG Request No. 1-18; Big Rivers Response to Joint Intervenors Request No. 2-16(c); May 22, 2024 HVT at 10:27 p.m. to 10:28 p.m.
[39] Big Rivers Response to Staff Request No. 2-2; Attachment to Big Rivers' Response to Joint Intervenors Request No. 2-16(c); May 22, 2024 HVT at 10:28 p.m. to 10:29 p.m., 10:34 p.m. to 10:37 p.m.

Agency process and/or customers who would not be interested in a home energy audit.[40] In other words, it does not appear that Big Rivers is actively evaluating the development of new DSM/EE programs, despite the fact that their own MPS indicates that there are many programs that would pass cost-effectiveness tests.

To help ensure that Big Rivers properly evaluates energy efficiency in future resource planning, Joint Intervenors urge the Staff to require the following:

- In future evaluations of energy efficiency potential, Big Rivers should ensure that each of the numerous flaws in the MPS that were detailed in the EFG Report are corrected.

- Big Rivers should include the achievable potential energy efficiency scenario in any resource modeling, and such scenario should be forced into the model for the reasons described at pages 20–21 of the EFG Report.

- To the extent that Big Rivers also evaluates a program potential energy efficiency scenario, provide a reasoned justification for the size of such program potential, rather than applying an arbitrary $1 million cap.

- Big Rivers should provide a written description of when and how it plans to pursue cost-effective energy efficiency programs, and a justification for any decision not to do so.

Such requirements should, of course, apply to Big Rivers' next IRP. Given, however, the importance of a full evaluation of energy efficiency to Big Rivers' "fresh start" analysis of its next generation resources that the Company is undertaking, Big Rivers should also be required to promptly file in this docket an analysis of energy efficiency potential meeting the above requirements. Doing so would help ensure the transparency and prudent planning that the IRP

[40] May 22, 2024 HVT at 10:29 p.m.

process is intended to encourage, but that has been missing here as a result of Big Rivers' flawed approach to energy efficiency in this proceeding.

## IV. BIG RIVERS SHOULD FULLY INCORPORATE NEW FEDERAL REGULATIONS INTO ITS RESOURCE PLANNING.

As Joint Intervenors noted in their initial comments on Big Rivers' IRP, Big Rivers did not include in its discussion or analysis for this IRP a reasonable or complete accounting of all likely environmental compliance costs and risks facing the Wilson coal plant during the planning period.[41] The testimony of Big Rivers witness Michael Mizell at the public hearing only underscored that there are numerous new costs and requirements facing both the Wilson coal plant and a potential Next Generation Resource that were not adequately discussed in the 2023 IRP, let alone quantified and incorporated into the analysis. These requirements include U.S. EPA's recent updates to Mercury and Air Toxics Standards ("MATS"), greenhouse gas ("GHG") regulations, and the Legacy Coal Combustion Residuals ("CCR") rule. In its report on the 2023 IRP, Commission Staff should direct Big Rivers to provide a comprehensive review of all potentially applicable environmental costs and requirements in its next IRP – even for those costs that are not yet certain. Commission Staff should also direct Big Rivers to promptly file into the docket of this case the updated analyses of these environmental requirements that Big Rivers acknowledged it is currently working on, as each one is completed, so that they are available to the Commission and the public without having to wait for Big Rivers' next IRP or some other future regulatory filing.

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[41] JI Comments at 24–30.

## A. Updated MATS Rule

EPA published an update to the MATS rule on May 7, 2024.[42] Among other things, the updated rule sets a new, more stringent limit on emissions of filterable particulate matter ("fPM") from coal-fired power plants such as the Wilson plant of 0.010 lb/mmBTU, starting in 2027.[43] The Wilson plant's current permit limit for fPM is 0.030 lb/mmBTU.[44] In a technical memo accompanying the final MATS update rule, U.S. EPA reviewed the Wilson plant as a case study and found that it had achieved the new 0.010 lb/MMBtu fPM limit "on multiple occasions for long periods of time," but not consistently, such that U.S. EPA believes that "it is likely this EGU will need to invest in some O&M of its" air pollution control equipment (an "ESP" or electrostatic precipitator) to meet the new fPM limit.[45] In response to questions about this at the hearing, Big Rivers witness Mizell testified that he believed U.S. EPA was incorrect to find that additional investments in the Wilson plant would likely be needed to comply with the new rule, based on Big Rivers' own operational experience and data that led the Company to believe that Wilson would likely be able to comply with the updated fPM limit consistently without additional investments (contrary to U.S. EPA's finding).[46] In particular, Mr. Mizell testified that he believed that upgrades to a different air pollution control at Wilson than the one that U.S. EPA had identified, the flue gas desulfurization ("FGD") system, should allow Wilson to comply

[42] U.S. EPA, *National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review*, 89 Fed. Reg. 38,508 (May 7, 2024).
[43] *Id.* at 38,510; *see also* May 22, 2024 HVT at 3:03 p.m.
[44] *See* Attachment 1 to Big Rivers Response to Sierra Club Request No. 1-13, p. 9 of 80; *see also* May 22, 2024 HVT at 2:59 to 3:00 p.m.
[45] May 22, 2024 HVT at 3:01 to 3:04 p.m.; *see also* Attachment to Big Rivers Response to Sierra Club Post-hearing Request No. 5 (providing copy of EPA technical memo).
[46] May 22, 2024 HVT at 3:05 to 3:08 p.m.

with the updated fPM limit.[47] However, Mr. Mizell also testified that he did not know why U.S. EPA found that additional compliance investments were likely required for the ESP, and he further testified that Big Rivers was still reviewing the rule with the assistance of technical consultants and expects to conclude that review by "this fall at the latest."[48] Given that the ESP, and not the FGD, is the primary air pollution control for addressing fPM, it is unclear why Big Rivers believes that the FGD upgrades are a primary reason why it will be able to comply with the new fPM limit.

Big Rivers did not even mention in the 2023 IRP the possibility that the updated MATS rule would impose additional compliance costs on the Wilson plant, despite having U.S. EPA's proposed rule (which included the proposed new fPM limit) available to it at the time it drafted the 2023 IRP.[49] Big Rivers could have provided in the 2023 IRP, but chose not to provide, analysis and supporting information of the potential impacts of the now-final updated MATS rule and explained their reasoning for why they did not believe compliance costs from that rule would be likely. Because they did not do so, the record of this case is incomplete. Commission Staff should direct Big Rivers not only to discuss in its next IRP whether additional compliance investments will be needed to comply with the updated MATS rule, but also to file the analysis of that issue in the docket of this proceeding promptly upon completion so that the Commission and the public have access to this important information that bears on Big Rivers' resource planning going forward.

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[47] May 22, 2024 HVT at 3:05 to 3:06 p.m.; *see also* Big Rivers Response to Sierra Club Post-hearing Request No. 5.

[48] May 22, 2024 HVT at 3:04 to 3:05 p.m.

[49] *See* Big Rivers 2023 IRP at 91–102 (Section VI on environmental compliance does not mention MATS rulemaking); *see also* May 22, 2024 HVT at 3:06 to 3:08 p.m. (Mr. Mizell testified that discussion of the rulemaking in the 2023 IRP would have been "pointless").

### B. New U.S. EPA GHG Rule

Another recently published rule that Big Rivers does acknowledge will have major implications for its resource planning is U.S. EPA's final GHG emission limits and guidelines for new and existing coal- and natural gas-fired power plants.[50] The new U.S. EPA GHG rule requires that existing coal plants scheduled to operate beyond January 1, 2039 – as the Wilson plant is currently scheduled to do – must meet an emission limit no later than January 1, 2032 reflecting the installation and operation of CCS systems that achieve a 90% capture rate for carbon dioxide ("CO2") emissions.[51] According to Mr. Mizell, this CCS requirement would not be feasible to meet at the Wilson plant by the regulatory deadline of January 1, 2032, and would likely require a "very high" level of parasitic load to run the CCS system that was not directly modeled by Big Rivers, even in their "Aggressive Carbon Regulation" scenario.[52]

Alternatively, if Big Rivers were instead to commit to retiring the Wilson plant before January 1, 2039, but planned to operate the plant past January 1, 2032, the new U.S. EPA GHG rule would require the plant to meet an emission limit reflecting co-firing with natural gas at 40% by heat input.[53] In response to post-hearing discovery, however, Big Rivers confirmed that it had not fully evaluated the costs of upgrades to the Wilson plant that would be required for this compliance alternative, which it described as "significant and costly."[54]

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[50] U.S. EPA, *New Source Performance Standards for Greenhouse Gas Emissions From New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule*, 89 Fed. Reg. 39,798 (May 9, 2024).
[51] U.S. EPA, *BESR-At-A-Glance* (Apr. 24, 2024) ("Hearing Exhibit JI-2"), *available at* https://www.epa.gov/system/files/documents/2024-04/cps-table-of-all-bser-final-rule-4-24-2024.pdf.
[52] May 22, 2024 HVT at 3:14 to 3:15 p.m.
[53] Hearing Exhibit JI-2.
[54] Big Rivers Response to Joint Intervenors Post-hearing Request No. 1.

Under the new U.S. EPA GHG rule, the only way for Big Rivers to avoid the compliance costs at Wilson of either CCS or natural gas co-firing would be to commit to retiring the plant by January 1, 2032.[55]

In addition, if Big Rivers decides to pursue a new gas plant as its Next Generation Resource, the new U.S. EPA GHG rule would require that gas plant either to meet an emission limit reflecting a 90% capture rate with CCS (or equivalent emissions reductions using hydrogen co-firing) by January 1, 2032, or be limited to a capacity factor of less than 40%.[56]

As discussed in Joint Intervenors' initial comments, Big Rivers did not provide a reasonable or complete assessment of the costs and risks to the Wilson plant from the new U.S. EPA GHG rule in the 2023 IRP[57] – and the same is true for a potential new natural gas resource, as Big Rivers did not provide any assessment of the risk that a new GHG rule would force such a resource to choose between complying with a CCS requirement (or its equivalent) or limiting its capacity factor to run as an "intermediate" resource.[58] Commission Staff should direct Big Rivers not only to discuss its potential compliance requirements under the new U.S. EPA GHG rule in its next IRP, but also to file such an analysis in the docket of this proceeding promptly upon completion. To state the obvious, Big Rivers' compliance with U.S. EPA's new GHG rule has the potential to significantly affect the economics of both the Wilson plant and any potential Next Generation Resource, and Commission Staff should direct Big Rivers to provide information about its assessment of compliance options with the rule as soon as it is completed and not wait for its next IRP or some other future regulatory filing.

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[55] Hearing Exhibit JI-2.
[56] *Id.*
[57] JI Comments at 25–26.
[58] *See* Hearing Exhibit JI-2.

### C. Legacy CCR Rule

Finally, Big Rivers witness Mizell acknowledged at the hearing that Big Rivers has significant new compliance obligations pursuant to U.S. EPA's recently finalized Legacy CCR Rule that the Company has not yet incorporated into its resource planning.[59] This new rule addresses CCR impoundments and management units that were not previously covered by federal regulations.[60] Joint Intervenors' initial comments in this docket focused on the likely impacts that this new rule will have at the Wilson plant.[61] At the hearing, Mr. Mizell testified that Big Rivers was going to take the next nine months to analyze the Legacy CCR Rule's impacts on all their facilities, including Coleman which has three potential CCR units that are newly regulated by the Legacy CCR Rule.[62] These new compliance obligations are on top of Big Rivers' unresolved compliance obligations under the 2015 CCR Rule, which Joint Intervenors' discussed in their initial comments in this case.[63] Big Rivers should be required to address these issues in their next IRP, and to promptly file its analysis of the Legacy CCR Rule in this docket when it is completed.

## V. BIG RIVERS SHOULD EVALUATE A RANGE OF POTENTIAL FUTURE LOADS AND FULLY EVALUATE THE COSTS OF ANY STRATEGY TO BUILD MORE CAPACITY THAN NEEDED TO SERVE NATIVE SYSTEM LOAD.

Big Rivers' 2023 IRP was based on a "build and hold" plan that the Company claims involves building "some excess installed capacity" as a safeguard against seasonal capacity losses and unanticipated increases in demand.[64] However, the 2023 IRP projects far more than

[59] May 22, 2024 HVT at 3:32 to 3:36 p.m.
[60] May 22, 2024 HVT at 3:32 to 3:36 p.m.
[61] JI Comments at 27–28.
[62] May 22, 2024 HVT at 3:33 to 3:36 p.m.
[63] JI Comments at 29–30.
[64] Big Rivers Response to Intervenor Comments at 15.

"some" excess capacity; in fact, the Company projects to "build and hold" nearly 400 MW of excess capacity by 2029.[65] The significant excess capacity and generation in the 2023 IRP appears to be the result of (1) the 2023 IRP modeling's selected option to build a new 635 MW NGCC and retire the 454 MW Green Station; (2) the unsupported assumption that new and/or renewed non-member sales customer contracts will materialize after the current contracts terminate between 2026 and 2029; and (3) the unsupported assumption that Direct Serve customer energy sales, nearly half of the Company's load, will remain the same for the next twenty years. Big Rivers' plan presents significant risks to the Company's actual ratepayers because it fails to adequately evaluate alternative scenarios where non-member and Direct Serve customer sales are lower or less profitable than assumed in the current load forecast, and it fails to fully evaluate the costs of building more capacity than needed to serve native system load.

**A. The 2023 IRP was based on a "build and hold" strategy that included significantly more capacity and energy than needed to serve native system load.**

As detailed in Joint Intervenors' Initial Comments, Big Rivers' 2023 IRP projects significant excess generation and capacity.[66] As a result of total system energy requirements projecting to decrease to between 4,700 and 4,900 GWh per year from 2030 through 2042, and total generation projecting to increase to nearly 9,000 GWh by 2042, the 2023 IRP projects approximately 2,000 GWh of excess generation in 2030 that increases to over 3,500 GWh in 2037.[67] The 2023 IRP similarly projects significant excess capacity beginning in 2029. Due to several non-member sales contracts terminating by 2029 and the 2023 IRP modeling's selected

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[65] *See* Big Rivers 2023 IRP at 18, 140 (retiring the Green Station (454 MW) and constructing a new 635 MW NGCC would increase total capacity from 1,114 MW to 1,295 MW).
[66] JI Comments at 34–40.
[67] *See* Big Rivers 2023 IRP, Appendix A at A-47; *id.*, Tbl. 7.4.1(c) at 155.

option to retire the Green Station and construct a new 635 MW NGCC in 2029, the 2023 IRP projects nearly 400 MW of excess capacity by 2029.[68]

In its Response to Comments, Big Rivers claimed, for the first time in this proceeding, that the excess capacity flagged by Joint Intervenors is a part of the Company's "build and hold" plan.[69] However, Big Rivers notably failed to make any mention of this "build and hold" plan anywhere in the 2023 IRP. As discussed further in the EFG Report attached to Joint Intervenors' Initial Comments, Big Rivers' plan to build and maintain excess generation and capacity presents several risks to the Company's members, including fuel price risk exposure due to projected generation primarily consisting of coal and gas generating resources.[70] Big Rivers is obligated to develop an IRP that meets "future demand with an adequate and reliable supply of electricity at *the lowest possible cost for all customers*."[71] Thus, it is in the best interest of Big Rivers' members that the Company fully evaluates a range of potential future loads, as discussed below.

### B. Big Rivers has failed to show that the costs of serving non-member sales contracts have provided or would provide a net benefit to the Company's members.

As mentioned above and detailed in Joint Intervenors' Initial Comments, Big Rivers appears to be operating under the unsupported assumption that the non-member sales contracts for Owensboro Municipal Utilities ("OMU") and Kentucky Municipal Energy Agency ("KyMEA") will renew after the current contracts expire in 2026 and 2029, respectively. However, Big Rivers has failed to provide data or analysis showing that the costs of serving its non-member sales contracts have provided a net benefit to the Company's members. As Big

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[68] *See id.* at 18, 140 (retiring the Green Station (454 MW) and constructing a new 635 MW NGCC would increase total capacity from 1,114 MW to 1,295 MW).
[69] Big Rivers Response to Intervenor Comments at 15.
[70] EFG Report at 22–24.
[71] 807 KAR 5:058 (emphasis added).

Rivers witness Christopher Warren testified at the hearing, the Company initially entered into long-term, non-member customer contracts because the Company was dealing with unexpected excess capacity as result of losing two aluminum smelters in the service area in August 2013 and January 2014.[72] However, Big Rivers now finds itself in a much different situation; the Company is no longer dealing with excess capacity that they must find customers to take on. Instead, Big Rivers is currently planning to build excess capacity specifically to serve non-native load. Thus, before Big Rivers takes the significant step of building excess capacity on the assumption that the renewal of non-member customer contracts will materialize, the Company should show that these contracts will provide net benefits to its members.

In response to a discovery request from Joint Intervenors asking Big Rivers to provide any analysis or calculation showing that its non-member energy sales to date have derived value for its members, the Company provided the actual and forecasted gross margin analyses, rather than any net margin analyses, for its non-member sales contracts for years 2018 through 2037.[73] As Big Rivers witness Warren testified, in order for the Company to determine whether non-member energy sales "derive value" for its members, Big Rivers would need to determine the total revenue that those sales would provide and the total costs of providing those energy sales to determine whether non-member sales have actually turned a profit or derived value.[74] However, the Company's gross margin analyses do not factor in the total costs of serving non-member sales contracts. Thus, nowhere in the 2023 IRP or this proceeding has Big Rivers provided

[72] May 22, 2024 HVT at 2:28 to 2:30 p.m.
[73] *See* Public Attach. 1 to Big Rivers Response to Joint Intervenors Request No. 1-23.
[74] May 22, 2024 HVT at 2:23 to 2:25 p.m.

support for the Company's claim that that it "engages in buying or selling any available excess resources where those transactions derive value for the Big Rivers members."[75]

Although Big Rivers did not model renewal of the OMU or KyMEA contracts for the 2023 IRP,[76] Big Rivers witness Warren testified that for budgeting purposes, the Company has previously modeled the non-member contracts as well as renewal and termination of those contracts.[77] This is potentially the type of analysis that would be helpful for the Commission and the public to understand whether non-member customer contracts benefit Big Rivers' members. Big Rivers witness Warren also testified that as a part of the Company's "strategic priorities" to "start afresh," the renewal of non-member customer contracts will be reevaluated."[78] Before the Company makes any decision on whether to continue with long-term, non-member customer contracts, and especially before Commission approval of any contract renewal is sought, Big Rivers should provide data or analysis showing whether the costs of serving non-member sales contracts has provided a net benefit to the Company's actual members.

**C. Big Rivers must evaluate the risks of Direct Serve customer load declining instead of solely relying on the unsupported assumption that more than half of its load will remain constant over the next twenty years.**

As detailed in Joint Intervenors' Initial Comments, Big Rivers did not fully forecast the Direct Serve class or evaluate scenarios where sales would be lower over the next twenty years in the 2023 IRP. Rather, the Company chose to assume that Direct Serve customer sales will remain steady at approximately 48% of native system sales until at least 2042.[79] This would also occur after Direct Serve customer sales are projected to increase from 28.8% of Big Rivers'

[75] *See* Big Rivers 2023 IRP, Appendix A at A-45.
[76] Big Rivers Response to Joint Intervenors Request No. 2-28.
[77] May 22, 2024 HVT at 2:26 to 2:30 p.m.
[78] May 22, 2024 HVT at 2:31 to 2:32 p.m.
[79] Big Rivers Response to Joint Intervenors Request No. 1-19(b).

native system sales in 2022 to 48.1% of native system sales in 2024.[80] Although Big Rivers claims that the Direct Serve class cannot be projected with the same level of accuracy as other customer classes because of issues like "unanticipated demand spikes,"[81] simply assuming that nearly half of the Company's sales will remain constant for this significant period of time without adequately evaluating alternative outcomes presents significant risks to Big Rivers' members. Big Rivers should not avoid analyzing or evaluating scenarios involving downside risk to their native customers where Direct Serve customer sales are lower than projected or lower than steady over the next 20 years solely "because it is difficult to accurately project growth for this customer class."[82]

Declines in load for such large customers can significantly impact Big Rivers' members, as the Company is certainly very familiar with after having to deal with the effects of losing two aluminum smelters about a decade ago. As large industrial customers, it is also possible that multiple Direct Serve customers could be impacted by the same events or changes in conditions that could result in an even larger decrease in load. For example, if multiple Direct Serve customers are in the same industry, an event or change in conditions that causes one such customer to leave Big Rivers' system could affect multiple customers simultaneously or in quick succession. Additionally, Big Rivers witness Terry Wright, Jr. testified at the hearing that the Direct Serve customer that was expected to be added in 2023 not only went online later than expected but their load has also been lower than expected.[83] This Direct Serve customer is also

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[80] Big Rivers 2023 IRP, Appendix A at A-43–A-44; Big Rivers Response to Joint Intervenors Request No. 1-22.
[81] Big Rivers Response to Intervenor Comments at 15.
[82] *Id.* at 16.
[83] May 22, 2024 HVT at 6:05 to 6:09 p.m.

projected to make up a significant portion of the increase in sales from 28.8% of native system sales in 2022 to 48.1% in 2024.[84]

As such, Big Rivers should, at a minimum, provide a complete forecast for the Direct Serve class as the Company did for other classes, such as the residential and general commercial and industrial classes, and evaluate the risks of Direct Serve customer load declining over the next 20 years.

### D. Big Rivers has no need for the 635 MW NGCC selected by the 2023 IRP modeling, especially if load is lower and/or the Green Station continues operating past 2029.

As mentioned above, the 2023 IRP modeling's selected option is to build a new 635 MW NGCC and retire the 454 MW Green Station, which would increase Big Rivers' total capacity by approximately 181 MW. As discussed above and throughout Joint Intervenors' Initial Comments, this option is based on the unsupported assumptions that Big Rivers' non-member customer contracts will renew over the next five years and Direct Serve class load will increase to approximately 48% of native system sales in 2024 and remain steady until 2042.

However, if Big Rivers were required to take the actions recommended above for non-member and Direct Serve sales, it seems very unlikely that the results would show a need for the Company to construct a new 635 MW NGCC. This is because there is currently no need for a new NGCC as things stand now. Even if the 2023 IRP's load projections were to remain the same, Big Rivers currently has sufficient capacity and generation to satisfy demand and total system energy requirements. If Big Rivers were to conduct the analysis recommended by Joint Intervenors, those analyses would likely result in lower projected future loads, which would make replacing the Green Station with a new 635 MW NGCC even more unnecessary.

[84] May 22, 2024 HVT at 6:05 to 6:09 p.m.

Additionally, when asked by Commissioner Chandler whether he had confidence in the 2023 IRP modeling's selected option, Big Rivers witness Wright was clearly reluctant to affirmatively answer the question and instead stated that "at this point in time, [Big Rivers is] not looking to file a CPCN study."[85]

As a part of the Company's plan to "start afresh," Big Rivers must fully evaluate the costs of any strategy to build more capacity than needed to serve native system load. Such an analysis should be required sooner than the next IRP filing, as decisions will need to be made on a shorter timeframe than three years from now. Therefore, the Company should be required to promptly file such analysis of the costs of its "build and hold" strategy in this docket.

## VI. BIG RIVERS SHOULD ENGAGE IN MORE ROBUST RESOURCE MODELING

At hearing, Big Rivers announced that it was no longer relying on the 2023 IRP but, instead, had initiated a new strategic planning process in which it is "going to take a fresh look at everything."[86] Given the significant flaws and shortcomings in the 2023 IRP, Joint Intervenors welcome this development, as the 2023 IRP should not be relied on as support for significant resource decisions, such as the new NGCC plant in 2029 proposed therein or the continued operation of Wilson until 2045. In order for the "fresh look" to be meaningful, however, it will be critical that the errors and unreasonable constraints in the 2023 IRP are not repeated and that all potential resource options are fairly and objectively evaluated through robust resource modeling.

In addition to the corrections and changes discussed above and in Joint Intervenors initial comments, Joint Intervenors highlight here two additional areas that would help ensure a more

[85] May 22, 2024 HVT at 7:50 to 7:51 p.m.
[86] May 22, 2024 HVT at 1:31 p.m.

prudent resource planning process moving forward. Joint Intervenors urge Staff to require these corrections and changes in its Staff Report. First, Big Rivers should evaluate through modeling multiple potential retirement dates for its existing Wilson and R.D. Green units. Doing so is necessary to assess the economics of the Wilson plant in light of current and future market conditions and regulatory requirements,[87] and to determine the optimal date for retiring and replacing R.D. Green. At hearing, witness John Christensen acknowledged that it is certainly feasible for a utility to model discrete potential retirement dates for a generating unit.[88] He further opined that utilities typically do so when there is "a significant shift in the anticipated cost profile" of a generating unit as the result of, for example, a major regulatory requirement.[89] Joint Intervenors contend that there are additional reasons to evaluate potential retirement dates for a generating unit, such as shifting market conditions[90] and/or a significant decline in cost of potential replacement options. But even under witness Christensen's approach, evaluation of potential retirement dates for Wilson before the 2032 and 2039 regulatory deadlines in the U.S. EPA GHG Rule discussed in Section IV above would be called for.[91] Those and/or other potential retirement dates should be evaluated in Big Rivers' "fresh start" analysis and future IRPs.

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[87] JI Comments at 31–33.

[88] May 22, 2024 HVT at 8:14 to 8:15 p.m.

[89] May 22, 2024 HVT at 8:14 to 8:15 p.m.; Big Rivers Response to Staff Request No. 2-30(b).

[90] For example, Big Rivers' own modeling shows a significant decline in the projected generation of the Wilson plant from 2026 through 2032, Big Rivers 2023 IRP at 155, which suggests the kind of reduced economic competitiveness that may have merited further evaluation.

[91] May 22, 2024 HVT at 8:18 to 8:19 p.m. Mr. Christensen agreed that the need under the U.S. EPA GHG Rule to install CCS on the Wilson plant would qualify as a significant shift in anticipated cost profile of the plant. His response to the same question regarding whether the 40% co-firing with gas required for units that operate past 2032 but retire before 2039 was cut off by technical difficulties, but Joint Intervenors contend that such requirement would also qualify as a significant shift in anticipated cost profile.

Second, Big Rivers must ensure that new supply-side resources are not unreasonably foreclosed from being selected in its modeling to fill future energy or capacity needs. As detailed in the EFG Report, Big Rivers placed three constraints on new supply-side resources in its 2023 IRP modeling – the year in which the model can first select each new resource, the amount of each resource that can be selected in each year, and the total amount of each resource that can be selected during the planning period.[92] The specific limits that Big Rivers placed in its 2023 IRP modeling on battery storage, solar, and wind resources foreclosed the model from being able to select sufficient amounts of those resources to replace R.D. Green by the 2029 retirement date tested in the modeling.[93] Moving forward, Big Rivers should ensure that any constraints on new supply-side resources are flexible enough to allow such resources to be meaningfully considered as potential options for filling whatever capacity or energy needs are being evaluated in the modeling.

## VII. CONCLUSION

Joint Intervenors appreciate this opportunity to provide supplemental comments and recommendations related to Big Rivers' 2023 IRP and look forward to future opportunities for constructive dialogue concerning Big Rivers' planning efforts.

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[92] EFG Report at 9–10.
[93] *Id.*

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**CERTIFICATE OF SERVICE**

In accordance with the Commission's July 22, 2021 Order in Case No. 2020-00085, *Electronic Emergency Docket Related to the Novel Coronavirus COVID*-19, this is to certify that the electronic filing was submitted to the Commission on July 02, 2024; that the documents in this electronic filing are a true representations of the materials prepared for the filing; and that the Commission has not excused any party from electronic filing procedures for this case at this time.

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Byron L. Gary