

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

**In the Matter of:**

**ELECTRONIC 2023 INTEGRATED  
RESOURCE PLAN OF BIG RIVERS  
ELECTRIC CORPORATION**

**Case No. 2023-00310**

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**SIERRA CLUB’S RESPONSES TO  
SUPPLEMENTAL POST-HEARING COMMENTS REGARDING BIG RIVERS’  
PROPOSED INTEGRATED RESOURCE PLAN**

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## **I. INTRODUCTION**

Pursuant to the Public Service Commission’s (“the PSC” or the “Commission”) May 31, 2024, Order in this matter, Sierra Club offers these responses to supplemental post-hearing comments on the Big Rivers Electric Corporation’s (“Big Rivers” or “BREC”) 2023 Joint Integrated Resource Plan (“IRP”). As detailed in Sierra Club’s post-hearing comments, Big Rivers’ IRP falls short of statutory requirements for least-cost planning and reliable service. Comments from other parties reinforce the many places where Big Rivers falls short in analyzing least-cost resource pathways and comments in support of the IRP fail to excuse these deficiencies. Consequently, the Commission should require that Big Rivers submit a new IRP that explicitly addresses the many flaws and analytical gaps identified by Sierra Club, other parties, the Chairman, and Staff in comments and at the hearing.<sup>1</sup>

## **II. CIRCUMSTANCES SURROUNDING BIG RIVERS’ IRP SUBMISSION DO NOT EXCUSE THE IRP’S NONCOMPLIANCE WITH LEGAL REQUIREMENTS.**

The Attorney General of the Commonwealth of Kentucky (“OAG”) attempts to excuse the inadequacy of Big Rivers’ IRP, highlighted by Sierra Club<sup>2</sup> and the Kentuckians for the

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<sup>1</sup> See Case No. 2023-00310, Sierra Club, Sierra Club’s Post-Hearing Comments Regarding Big Rivers’ Proposed Integrated Resource Plan, at 1 (July 2, 2024) (hereinafter “Sierra Club Post-Hearing Comments”) (recommending that “to ensure statutory compliance, the PSC should require Big Rivers to model and analyze certain inputs and assumptions, including requiring evaluation of a) environmental compliance costs associated with each of the five EPA rules detailed below (including actual CCS costs), b) early retirement and alternative resource scenarios for Wilson, c) alternative resource scenarios for the NGCC plant, d) uncapped demand response scenarios, e) maximizing savings from utility-scale investments incentivized by the Inflation Reduction Act (“IRA”), and f) maximizing savings from clean energy financing programs such as the Energy Infrastructure Reinvestment Program, New Era Program, and Rural America Energy Program”).

<sup>2</sup> Sierra Club Post-Hearing Comments at 3-24.

Commonwealth and Kentucky Resources Council (the “Joint Intervenors”)<sup>3</sup> in post-hearing supplemental comments, in addition to analytical gaps like environmental compliance costs and Wilson retirement planning, highlighted by the Chairman<sup>4</sup> and Staff<sup>5</sup> in the hearing. The facts and circumstances raised by the OAG are irrelevant and do not excuse the IRP’s inadequacies. The OAG notes the IRP’s page length and states that it “clearly indicates that many months of work went into its preparation.”<sup>6</sup> IRP regulations contain no page requirements. Instead, they set out specific content requirements dictating what must be included when utilities submit an IRP. These requirements include analyses of reliability, least-cost scenarios, key uncertainties, projected costs, key assumptions, and portfolio alternatives.<sup>7</sup> The IRP submitted by Big Rivers does not adequately analyze any of these required elements, despite its nearly 500-page length.

The OAG also notes that none of the members of the Big Rivers leadership team responsible for producing the IRP still work at the Company.<sup>8</sup> Again, this has no bearing on whether the IRP should be approved and does not cure the many deficiencies that Sierra Club and other parties raised. Most importantly, it does not cure the IRP’s failure to perform the most fundamental task of an IRP, which is to evaluate various scenarios in order to plan for a reliable least-cost portfolio. 807 K.A.R. 5:058 (necessity, function, and conformity). Indeed, the lack of clarity as to the new leadership’s plans, highlighted by the OAG,<sup>9</sup> is further reason for the

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<sup>3</sup> Case No. 2023-00310, Joint Intervenors, Post-Hearing Supplemental Comments of Joint Intervenors Kentuckians For The Commonwealth and Kentucky Resources Council, at 24 (July 2, 2024) (hereinafter “Joint Intervenors Post-Hearing Comments”).

<sup>4</sup> May 22, 2024 Hearing Video Transcript at 5:05 p.m.

<sup>5</sup> May 22, 2024 Hearing Video Transcript at 5:03 p.m.

<sup>6</sup> Case No. 2023-00310, Attorney General’s Office of Rate Intervention, Attorney General’s Supplemental Post-Hearing Comments, at 1 (July 2, 2024) (hereinafter “OAG Post-Hearing Comments”).

<sup>7</sup> See Sierra Club Post-Hearing Comments at 2-3.

<sup>8</sup> OAG Post-Hearing Comments at 1.

<sup>9</sup> *Id.*

Commission to reject the deficient current IRP and to require submission of an updated IRP with the inputs and assumptions that Sierra Club recommended in supplemental post-hearing comments.<sup>10</sup>

### **III. BIG RIVERS DOES NOT ADEQUATELY ADDRESS RELIABILITY IN THE IRP.**

The OAG asserts that Big Rivers “appropriately continues to prioritize reliability” but provides no evidence that the Company has done so.<sup>11</sup> It dismisses Wilson’s recent outages during extreme weather without explaining why they should not be a concern.<sup>12</sup> Further, the OAG declares that “the historical record establishes conclusively that capacity factors and equivalent availability factors for fossil-fueled generation facilities far exceed those for renewable generation facilities located within Kentucky” without any record support whatsoever.<sup>13</sup> The OAG’s comments do not address the ample evidence that Wilson’s reliability is deteriorating<sup>14</sup> nor do they address Big Rivers’ report that Wilson’s equivalent availability factor was only 70.12% in 2022,<sup>15</sup> including derates and outages during Winter storm Elliott when Wilson, as a purported reliability resource, was most needed.<sup>16</sup>

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<sup>10</sup> See Sierra Club Post-Hearing Comments at 1.

<sup>11</sup> OAG Post-Hearing Comments at 2.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> See Sierra Club Post-Hearing Comments at 4 (“The rest of 2022 reveals 27 days with over 24 hours of 50+ MW derates, nearly a month of unreliability. Wilson also had a high number of short duration immediate forced outages, including many over 10 hours. These failures affected different parts and systems at Wilson.”).

<sup>15</sup> BREC Response to Sierra Club’s Post-Hearing Data Requests, PH-3(b).

<sup>16</sup> See Sierra Club Post-Hearing Comments at 4.

#### **IV. BIG RIVERS FAILS TO SHOW THAT THE NGCC IS NEEDED NOR IN THE INTEREST OF MEMBER-OWNERS.**

Sierra Club’s post-hearing comments explained that the Big Rivers IRP failed to adequately analyze alternatives to the proposed natural gas combined cycle plant (“NGCC”) project.<sup>17</sup> The IRP’s modeling assumed the addition of the 635 MW NGCC in 2029 in two of the three portfolios analyzed, and the only modeled portfolio which did not include the NGCC instead included two newly built gas-fired combustion turbines with a combined capacity of 450 MW in 2029.<sup>18</sup> In short, addition of a large new gas resource in 2029 was inappropriately “locked in” as part of the IRP modeling. The IRP failed to consider whether non-gas resources such as renewable energy, storage, demand-side resources, or a combination of such resources, could take the place of the NGCC. Sierra Club’s comments explained that Big Rivers was required to consider multiple alternatives to the NGCC project, determine which alternatives would be lowest-cost and lowest-risk, and evaluate the reliability impacts of each alternative.<sup>19</sup>

Similarly, the post-hearing comments of the Joint Intervenors note that Big Rivers failed to adequately consider energy efficiency as an alternative to the NGCC project.<sup>20</sup> Even if Big Rivers could establish that there is a need for a significant new resource in 2029 (which it has not demonstrated, as explained below), the Company has not evaluated whether any such need could be met via energy efficiency measures and other resources instead of the NGCC project. Record evidence establishes that energy efficiency would be a net benefit to customers, but the IRP modeling improperly caps spending on efficiency programs and fails to analyze the full potential

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<sup>17</sup> *Id.* at 1.

<sup>18</sup> *Id.* at 22.

<sup>19</sup> *Id.*

<sup>20</sup> *See* Joint Intervenors Post-Hearing Comments at 9.

that could be realized through optimal implementation of energy efficiency measures.<sup>21</sup> Sierra Club supports the Joint Intervenors' comments on this point.

The Joint Intervenors also highlight additional flaws in the IRP's approach to the NGCC project. The Joint Intervenors explain that Big Rivers did not demonstrate a need justifying the NGCC and is overbuilding significantly more resources than it needs to meet native system load.<sup>22</sup> Specifically, Big Rivers plans to "build and hold" nearly 400 MW of excess capacity by 2029.<sup>23</sup> The Joint Intervenors explain that this excess generating capacity results from (1) the IRP's plan to build the 635 MW NGCC and retire the 454 MW Green Station, increasing capacity by 181 MW; (2) the IRP's unsupported assumption that Big Rivers will enter new or renewed non-member sales customer contracts after the current contracts end between 2026 and 2029; and (3) the IRP's unsupported assumption that Direct Serve customer energy sales will increase to approximately 48% of native system sales in 2024 and remain steady until 2042.<sup>24</sup>

The IRP fails to adequately evaluate alternative scenarios where non-member and Direct Serve customer sales are lower than assumed in the current load forecast, and does not fully evaluate the costs of building more capacity than needed to serve native system load. If Big Rivers were to conduct this missing analysis, it would likely lower projected future loads and demonstrate that there is no need for the Company to construct the NGCC in 2029.<sup>25</sup> Big Rivers currently has sufficient capacity and generation to satisfy demand and total system energy

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<sup>21</sup> *Id.*

<sup>22</sup> Joint Intervenors Post-Hearing Comments at 18.

<sup>23</sup> *Id.*, see also Case No. 2023-00310, Big Rivers Electric Corp., Big Rivers 2023 Integrated Resource Plan, at 18, 140 (Sept. 29, 2023) ("Big Rivers 2023 IRP" or "2023 IRP") (as the Joint Intervenors note, "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.")

<sup>24</sup> Joint Intervenors Post-Hearing Comments at 17.

<sup>25</sup> *Id.* at 23.

requirements.<sup>26</sup> The IRP's plan to build the NGCC presents significant risks to the Company's member-owners, who may be forced to pay for Big Rivers' generation overbuild if future load is lower than projected. Sierra Club supports the Joint Intervenors' recommendation<sup>27</sup> that the Commission require Big Rivers to evaluate a range of potential future loads and fully evaluate the costs of building more capacity than is needed to serve native system load. As outlined in post-hearing comments, Sierra Club believes that all forward-going IRP requirements should be prescribed by the Commission in a new investigatory proceeding.<sup>28</sup>

The OAG urges Big Rivers to commit to building the NGCC by 2029 as outlined in the 2023 IRP, but its arguments fail for several reasons. First, the OAG contends that the retirement of Green Station by 2029 will necessitate its replacement with the NGCC.<sup>29</sup> But as explained above, retirement of the 454 MW Green Station and its replacement with the 635 MW NGCC would result in a net 181 MW increase in Big Rivers' total capacity, and Big Rivers is projected to have nearly 400 MW of excess capacity by 2029. Big Rivers has not demonstrated the need for the NGCC or even a resource close to its size. Second, the OAG contends that the NGCC "likely would prove highly cost-competitive," and asserts that the NGCC is needed to keep rates affordable.<sup>30</sup> But the OAG does not cite any evidence to support this assertion. As explained above, the Big Rivers IRP did not adequately evaluate alternatives to the NGCC project that could meet identified future needs, and therefore cannot say that the NGCC is the lowest-cost option available. Third, the OAG asserts that Big Rivers will not be able to meet customer load base without "fossil-fuel fired, dispatchable generation."<sup>31</sup> Again, the OAG cites no evidence to

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<sup>26</sup> *Id.*

<sup>27</sup> *Id.* at 17, 24.

<sup>28</sup> Sierra Club Post-Hearing Comments at 1-3.

<sup>29</sup> OAG Post-Hearing Comments at 2-3.

<sup>30</sup> *Id.* at 3, 4-5.

<sup>31</sup> *Id.*

support this claim. But even assuming that the OAG were correct, Big Rivers will continue to have fossil-fueled resources in its portfolio after Green Station is retired, as the Company plans to keep operating Wilson until 2045, and the Reid Station combustion turbine also provides dispatchable generation. Moreover, fossil-fired plants are not the only dispatchable resources available. Battery storage and demand response programs can also serve as dispatchable resources. Big Rivers has failed to show that the NGCC is needed or in the best interest of ratepayers, and the OAG's comments do nothing to remedy these failures.

## **V. PARTY COMMENTS REINFORCE THE IRP'S MANY DEFICIENCIES.**

The Joint Intervenors aptly shine a light on the major flaws in Big Rivers' IRP analyses that prevent it from choosing a least-cost reliable resource plan. Sierra Club agrees with the Joint Intervenors that in order for Big Rivers' "'fresh look' to be meaningful ... 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."<sup>32</sup>

### **A. Big Rivers' IRP Fails to Evaluate Alternatives to Wilson and the Proposed NGCC Plant and Fails to Evaluate Wilson Retirement Scenarios.**

Sierra Club agrees with the Joint Intervenors that 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."<sup>33</sup> As the Joint Intervenors point out, Big Rivers should be required to evaluate and model multiple potential retirement dates for the existing Wilson and R.D. Green units.<sup>34</sup> As Sierra Club noted in its comments, without this

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<sup>32</sup> Joint Intervenors Post-Hearing Comments at 24.

<sup>33</sup> *Id.*

<sup>34</sup> *Id.*



analysis, the IRP does not meet the baseline legal requirements of an IRP, as set out in Kentucky law and regulations.<sup>35</sup>

Because the IRP “hard-coded” Wilson’s continued operation and the proposed NGCC into modeling and planning, the IRP did not evaluate or plan for procurement of cheaper alternative resources.<sup>36</sup> As the Joint Intervenors highlight, this led to Big Rivers leaving opportunities on the table, including federal New ERA funding. Because of the IRP’s rigidity and commitment to a Carbon Capture & Storage project that the Company admits is not viable, Big Rivers did not seek out New ERA 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.”<sup>37</sup>

#### **B. The Big Rivers IRP Is Hampered by Modeling Rigidity.**

The Joint Intervenors show convincingly that despite the potential for demand-side resources such as energy efficiency to provide significant savings to Big Rivers member-owners, the Company arbitrarily constrained its modeling to make it impossible for the IRP to select or plan for greater investment in energy efficiency and demand response.<sup>38</sup> The Joint Intervenors note correctly that the Company’s market potential study (“MPS”) for demand-side management contains a number of critical errors that restrict the potential of energy efficiency to contribute to Big Rivers’ resource mix.<sup>39</sup> And the Joint Intervenors highlight that despite these flaws, the MPS still finds that energy efficiency can result in “an achievable potential of 10% of cumulative

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<sup>35</sup> Sierra Club Post-Hearing Comments at 21-23.

<sup>36</sup> See Joint Intervenors Post-Hearing Comments at 26.

<sup>37</sup> *Id.* at 6.

<sup>38</sup> See *id.* at 9, 18, 24.

<sup>39</sup> *Id.* at 7-8.

energy savings over 10 years,” with a 3-1 benefit-cost ratio.<sup>40</sup> Even these understated but favorable MPS findings on energy efficiency are ignored in the IRP because Big Rivers caps demand-side spending at \$1 million annually, cutting off Big Rivers’ member-owners from any potential savings from avoided investments, such as in continued operation of Wilson or in expensive and risky fossil fuel resources such as the proposed NGCC.<sup>41</sup>

### **C. The IRP Fails to Adequately Evaluate Environmental Compliance Costs.**

Sierra Club’s post-hearing comments explained that Big Rivers failed to adequately account for compliance costs associated with environmental regulations.<sup>42</sup> Specifically, Sierra Club explained that the Big Rivers IRP fails to analyze environmental compliance costs impacting Wilson unit as a result of EPA’s new greenhouse gas (“GHG”) emissions standards for coal-fired power plants, the mercury and air toxics standards (“MATS”), the Good Neighbor Plan, EPA’s effluent limitation guidelines (“ELG”) rule, and the coal combustion residuals (“CCR”) rule. Draft versions of each of these rules were available at the time that Big Rivers was preparing its 2023 IRP, but the IRP did not evaluate the cost of complying with any of these specific regulations. The IRP modeled a generic “carbon reduction” portfolio under which Wilson would be retrofitted with carbon capture and sequestration (“CCS”) technology, but this generic scenario does not correspond to EPA’s actual GHG rule, which Big Rivers admits it did not analyze.<sup>43</sup> Moreover, Big Rivers made no attempt to analyze the compliance costs of regulations governing other pollutants at Wilson, including the MATS rule, Good Neighbor Plan, ELG rule, and CCR rule.

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<sup>40</sup> *Id.* at 7.

<sup>41</sup> *See* Sierra Club Post-Hearing Comments at 5-17.

<sup>42</sup> *Id.* at 21.

<sup>43</sup> *Id.* at 6.

The Joint Intervenors' comments reinforce Sierra Club's conclusions, highlighting the IRP's failure to evaluate environmental compliance costs.<sup>44</sup> The Joint Intervenors criticized the IRP's failure to analyze the GHG rule, MATS rule, and CCR rule, noting that while Big Rivers claims it has been reviewing these rules, the Company has not produced any documentation of that review, either in the IRP itself or as evidence in this proceeding.<sup>45</sup> For example, while Big Rivers witness Mizell claimed at hearing that the MATS rule would likely not result in compliance costs at Wilson and asserted that EPA's estimate of those costs is inaccurate,<sup>46</sup> Big Rivers has not produced any evidence to support this claim. With respect to the GHG rule, Big Rivers asserted that it is infeasible to capture 90% of Wilson's CO<sub>2</sub> emissions via CCS by the rule's 2032 compliance deadline.<sup>47</sup> Yet Big Rivers failed to analyze the potential for 40% gas co-firing at Wilson or retiring Wilson and replacing it with other resources by 2032, which are alternative compliance pathways under the GHG rule that rely on commercially available technologies. Finally, Big Rivers acknowledged at the hearing that the CCR Rule will impose significant new compliance obligations, including at Coleman, but the Company's IRP fails to analyze the associated costs.<sup>48</sup> Sierra Club supports the Joint Intervenors' recommendation<sup>49</sup> that the Commission order Big Rivers to provide full analyses of each of these final environmental rules as part of an updated IRP filing in this docket as soon as they are complete, rather than waiting until the next IRP.

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<sup>44</sup> Joint Intervenors Post-Hearing Comments at 12.

<sup>45</sup> *Id.*

<sup>46</sup> May 22, 2024 Hearing Video Transcript at 3:05 to 3:08 p.m.

<sup>47</sup> May 22, 2024 Hearing Video Transcript at 3:14 to 3:15 p.m.

<sup>48</sup> May 22, 2024 Hearing Video Transcript at 3:32 to 3:36 p.m.

<sup>49</sup> Joint Intervenors Post-Hearing Comments at 12.

## VI. CONCLUSION

For the foregoing reasons, Sierra Club respectfully recommends that the Commission reject this IRP and order Big Rivers to resubmit an updated IRP in a new investigatory docket that addresses the many flaws and analytical gaps identified by parties in this proceeding. Sierra Club appreciates the opportunity to submit these responsive comments.

Dated: July 19, 2024

Respectfully submitted,

/s/ Joe F. Childers

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### **CERTIFICATE OF SERVICE**

Pursuant to the Commission's Orders in Case No. 2020-00085, and in accord with all other applicable law, Counsel certifies that an electronic copy of the forgoing was served and filed by e-mail to the parties of record.

This 19<sup>th</sup> day of July, 2024

/s/ Joe F. Childers