

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

**In the Matter of:**

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

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**Case No. 2023-00310**

**SIERRA CLUB’S COMMENTS REGARDING BIG RIVERS’ PROPOSED  
INTEGRATED RESOURCE PLAN**

Sierra Club respectfully submits these comments regarding Big Rivers’ proposed integrated resource plan. The proposed plan does not adequately comply with regulatory requirements for analysis and discussion of Big Rivers’ generation portfolio over the next fifteen years, particularly with respect to D.B. Wilson and its impending retirement. Big Rivers’ IRP fails to analyze or account for significant reliability concerns regarding the Wilson unit, including its complete failure for almost six hours during the height of Winter Storm Elliott and significant derate throughout that winter weather. It likewise fails to analyze or account for significant concrete environmental compliance risks facing the Wilson unit, including specific regulations pursuant to the Clean Air Act that Kentucky IRP regulations specifically require that utilities analyze over the fifteen-year period of the IRP. Further, the IRP appears to reflexively choose CCS for Wilson despite the extraordinary cost burden on customers, and it fails to adequately account for potential benefits to the utility under the Inflation Reduction Act.

The Commission should not allow an additional three years to pass before Big Rivers corrects these very significant issues. The significant reliability concerns with the Wilson unit

and the need to act quickly and nimbly to respond to pending environmental regulations require resource planning now. Indeed, that is the purpose of this process. The Commission should reject the proposed IRP as not fulfilling the regulatory requirements for a full IRP under Kentucky law and regulation and require an immediate resubmission by Big Rivers. Doing so will protect Kentucky customers and ensure that the utility is on the best path for continuing to provide affordable and reliable electricity to Kentucky customers.

### **I. Background: Kentucky Integrated Resource Plan Requirements**

Kentucky law requires that utilities “furnish adequate, efficient and reasonable service” and provides for “fair, just and reasonable rates.” K.R.S. § 278.030(1)-(2). Pursuant to these goals, Kentucky regulation provides 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, and satisfy all related state and federal laws and regulations.” 807 K.A.R. 5:058 (necessity, function, and conformity). Specifically:

Each electric utility shall file triennially with the commission an integrated resource plan. The plan shall include historical and projected demand, resource, and financial data, and other operating performance and system information, and shall discuss the facts, assumptions, and conclusions, upon which the plan is based and the actions it proposes.

807 K.A.R. 5:058 § 1(2).

As part of the IRP, the utility must provide its “resource assessment and acquisition plan for providing an adequate and reliable supply of electricity to meet forecasted electricity requirements at the lowest possible cost.” *Id.* § 8(1). In doing so, the utility’s plan must “consider the potential impacts of selected, key uncertainties and shall include assessment of potentially cost-effective resource options available to the utility.” *Id.* The utility must “describe and discuss all options considered for inclusion in the plan”: for example, “demand-side programs.” *Id.* §

8(2). For existing generation, the utility must include “for each facility” “[s]cheduled upgrades, deratings, and retirement dates,” as well as detailed “[a]ctual and projected cost and operating information for the base year (for existing units) . . . and the basis for projecting the information to each of the fifteen (15) forecast years.” *Id.* § 8(3)(b)(12). Further, “[t]he utility shall describe and discuss its resource assessment and acquisition plan which shall consist of resource options which produce adequate and reliable means to meet annual and seasonal peak demands and total energy requirements identified in the base load forecast at the lowest possible cost.” *Id.* § 8(4). For resource capacity, this includes “[p]lanned retirements.”

Finally, the integrated resource plan must “include a description and discussion of” key issues, including: “[k]ey assumption and judgments used in the assessment and how uncertainties in those assumptions and judgments were incorporated into analyses,” *id.* § 8(5)(b); “[c]riteria (for example, present value of revenue requirements, capital requirements, environmental impacts, flexibility, diversity) used to screen each resource alternative including demand-side programs, and criteria used to select the final mix of resources presented in the acquisition plan,” *id.* § 8(5)(c); “[c]riteria used in determining the appropriate level of reliability and the required reserve or capacity margin, and discussion of how these determinations have influenced selection of options,” *id.* § 8(5)(d); “[e]xisting and projected research efforts and programs which are directed at developing data for future assessments and refinements of analyses,” *id.* § 8(5)(e); and “[a]ctions to be undertaken during the fifteen (15) years covered by the plan to meet the requirements of the Clean Air Act amendments of 1990, and how these actions affect the utility’s resource assessment,” *id.* § 8(5)(f).

In short, Kentucky IRPs requires rigorous and specific analysis and discussion of key issues regarding resource planning. This is unsurprising, since the purpose of the IRP is planning

for the future, to ensure that Kentuckians have access to affordable and reliable electricity.

Utilities must analyze at a granular level the economics, reliability, and environmental risk of existing generation and contrast it with other options, including replacement generation.

Moreover, the IRP process is all the more important now in light of recently adopted Kentucky legislation, now codified at K.R.S. §§ 278.262 and 278.264. Section 278.264 requires that utilities apply to the Commission for approval of electric generating unit retirements. For fossil fuel-fired electric generating units, the law provides for “a rebuttable presumption against” retirement. *Id.* § 278.264(2). Rebutting that presumption requires, among other showings, evidence as to replacement capacity, whether the unit’s retirement will “caus[e] the utility to incur any net incremental costs . . . that could be avoided by continuing to operate the . . . unit . . . in compliance with applicable law,” and a showing “that cost savings will result to customers as a result of the retirement.” *Id.* § 278.264(2)(a)-(b), (3). These questions that must be answered before retirement obviously require planning on the part of the utility—potentially, planning far into the future to anticipate how to ensure showings of cost savings and a lack of avoidable net incremental costs in order to maximize retirement at a time that is beneficial to customers. It is therefore all the more urgent and important that BREC and other Kentucky utilities plan, in the IRP, for eventual retirements of fossil fuel-fired units. It is likewise urgent and important that BREC and other utilities explain through “description and discussion” the assumptions, judgments, and criteria that underlie determinations regarding retirement, as well as the efforts that the utility is taking and will take to continue to “assess[] and refine[]” this analysis. 807 K.A.R. 5:058 § 8(5).

**II. Big Rivers' IRP Fails to Meet the Requirements of the IRP Process, Especially By Failing to Question the Retirement Date or Account for Impending Retirement of Wilson**

Big Rivers failed to take into account significant issues with reliability, risk of environmental regulation and attendant economic and legal risk, and the significant economic downsides of CCS. And it failed to even model retiring and replacing Wilson. Big Rivers instead has told Commission staff, "It is infeasible to model a potential replacement for . . . the Wilson unit at this time."<sup>1</sup> Big Rivers has described such modeling as "requir[ing] the unrealistic assumption that Big Rivers would or could replace such a significant portion of its power supply."<sup>2</sup>

But that is the entire point of the resource planning process: to account for and model retirements and replacement generation. Big Rivers has gone into the resource planning process with the assumptions that Wilson is reliable, that it need account for only cost of carbon and not other known potential environmental costs for Wilson, and that CCS is the only pathway to deal with increased carbon regulation. It seems, by the above comment, to have gone into the resource planning process with the assumption that Wilson will continue to be on the grid indefinitely and that there is no need to plan for replacement generation notwithstanding K.R.S. § 278.264. These assumptions are inaccurate. Moreover, the level of detail in the IRP does not reflect the level of detailed analysis contemplated by the regulations to protect affordability and reliability for customers. Big Rivers has failed to analyze the reliability of Wilson, ignoring Wilson's failures during Winter Storm Elliott and glossing over broader reliability concerns by pointing to a generalized notion of historical reliability. Big Rivers has not accounted for environmental compliance risk at Wilson, including concrete potential costs that are evident from pending and

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<sup>1</sup> BREC Resp. to PSC 2-24.

<sup>2</sup> *Id.*

recently finalized regulations. Finally, Big Rivers has reflexively adopted the idea that Big Rivers should adopt CCS on the Wilson unit, without evaluating the significant costs surrounding that option *as compared to other options* for complying with carbon regulation, including speeding up retirement.

Big Rivers describes the D.B. Wilson Station as “[t]he ‘workhorse’ of the Company’s generating fleet.” IRP at 18. This is plainly true in terms of capacity: 37% of Big Rivers’ total capacity and 44% of its owned generating capacity is currently reliant on Wilson’s 417 MW of net generation.

For this reason, it is especially important that Big Rivers anticipate and have in place a plan for Wilson’s realistic impending retirement. The plant has already been in operation for 38 years. IRP at 35. By the end of this IRP’s 15-year time horizon, Wilson will be 53 years old. Big Rivers nonetheless plans to operate Wilson until 2045, at 59 years of age—not only aged for a coal unit, but also out of step with federal environmental regulations such as 111d. Big Rivers has failed to justify this far-in-the-future retirement date in this exceedingly sparse IRP. Nor could it: reliability considerations, environmental regulation, and the exorbitant cost of carbon capture and sequestration all indicate that an earlier retirement date for Wilson is warranted.

**A. Big Rivers Has Failed to Analyze or Account for Wilson’s Reliability Failures, Including Its Significant Failures During Winter Storm Elliott.**

Big Rivers’ IRP baldly asserts that Wilson “has proven to be a reliable source of baseload generation for Big Rivers and its Members for many decades.” IRP at 18. That may be historically true, decades ago. But it is not an accurate description of Wilson’s recent performance. During Winter Storm Elliott in December 2022, Wilson was *not* reliable: all 417 MW went offline for almost six hours at the storm’s peak, and 197 MW were unavailable from December 19 to January 2. Looking at the year 2022 overall, Wilson had significant failures in

the form of complete outages or 50+ MW of derate, lasting more than 24 hours, for 27 days. These failures are not surprising given Wilson’s age: the GADS data indicates that like an old house or an old car, the parts in Wilson are beginning to break down. But Big Rivers’ IRP fails to recognize or account for this fundamental truth about its aging coal plant. Big Rivers has failed to critically examine Wilson’s performance to evaluate whether reliability issues impact either retirement or a need for portfolio diversification. This failure is a serious error that disserves Big Rivers customers by failing to accurately project when replacement generation is warranted to keep the lights on.

Wilson was not reliable when Kentuckians have needed it arguably the most: during Winter Storm Elliott. From December 19, 2022, at 6:06 AM to January 2, 2023 at 7:22 PM, Wilson had a forced derate of 197 MW due to mechanical or electrical failures.<sup>3</sup> In other words, for roughly 14 days at the coldest time of year—including during the *entirety* of Winter Storm Elliott—almost half (47%) of the capacity of Big Rivers’ “workhorse” coal-fired power plant was unavailable due to mechanical failure. Further, according to Big Rivers’ data, all 417 MW of Wilson’s coal-fired capacity was unavailable for almost six hours at the height of the storm. From 11:21 PM on December 22, 2022, to 1:56 AM on December 23, 2022, and from 7:53 PM on December 23, 2022 to 11:06 PM on December 23, 2022, Wilson was completely offline due to forced outages caused by mechanical failures. The first complete Wilson outage during Winter Storm Elliott, for about 2.5 hours, was caused by “wet/frozen fuel” at the coal-fired plant that

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<sup>3</sup> BREC Resp. to Sierra Club 1-18, Attachment 1A. There appears to be a discrepancy between this response and the GADS data. The GADS data does not reflect a derate between December 23 at 7:53 PM and December 28 at 9:30 AM. BREC Resp. to Sierra Club 2-10, Attachment (Wilson GADS Data).

“led to air flow issues” causing an induced draft fan to fail to operate.<sup>4</sup> The second complete outage, for about 3.5 hours, was also caused by the induced draft fan’s failure.<sup>5</sup>

Nor were these failures during Elliott isolated incidents. In 2022, Wilson reliability failures led to complete outages or derates of at least 50 MW, lasting for a day or more, at least 13 more times in addition to the period from December 19 to January 2 described above. These failures occurred across multiple systems at the unit and are not attributable to one particular point of failure:<sup>6</sup>

- February 13 to February 15: 55-hour 417 MW forced outage due to a tube leak in the reheater.
- March 14 to March 15: 31 hours total of significant derate or complete outage. 22-hour 260 MW forced derate due to an electrostatic precipitator field being out of service, following a trip; 9-hour 417 MW forced immediate outage due to a trip when closing a feeder breaker.
- May 15 to May 17: 47-hour 417 MW forced immediate outage due to an economizer tube leak.
- May 21 to May 25: 84-hour 417 MW forced outage due to a tube leak.
- June 17 to June 20: 73-hour 417 MW forced immediate outage due to loss of SCR flow path.
- July 6 to July 11: 108-hour 417 MW forced outage due to a tube leak.

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<sup>4</sup> BREC Resp. to Sierra Club 2-10, Attachment (Wilson GADS Data).

<sup>5</sup> Again, there appears to be a discrepancy between BREC Resp. to Sierra Club 1-18, Attachment 1A, and the GADS data. The GADS data reflects a 204 MW derate at this time, rather than a complete outage. BREC Resp. to Sierra Club 2-10, Attachment (Wilson GADS Data).

<sup>6</sup> All information in the below bullets comes from BREC Resp. to Sierra Club 2-10, Attachment (Wilson GADS Data).



- August 1 to August 2: 36-hour 262 MW forced derate due to an induced draft fan issue.
- August 21 to August 22: 24-hour 67 MW forced derate due to an induced draft fan issue and “maintenance issues on FGD.”
- August 24 to August 26: 43-hour 417 MW forced outage due to air heater issue.
- September 9 to September 11: 24-hour 92.73 MW derate due to cleaning and repairs to scrubber/absorber tower or module components; 24-hour 76.6 MW derate for the same issue.
- September 11 to September 14: 73-hour 417 MW forced outage due to tube leak.
- September 15 to September 16: 30-hour 417 MW forced immediate outage due to “tube leak econ inlet header.”
- November 25 to November 26: 37-hour 417 MW forced outage due to an induced draft fan being out of service.

Again, these are only outages or derates that both amounted to at least 50 MW and lasted for a day or more. **Those outages or significant derates alone, setting aside the period from December 19 to December 31, total at least 27 days in 2022—almost an entire month of the year when Kentucky customers could not rely on Wilson to supply ample electricity.** And this does not include immediate forced outages of shorter duration. For example, the 16-hour 417 MW forced immediate outage on January 18, 2022 (due to an “isolation valve leak), the 3-hour 417 MW forced immediate outage on January 19, 2022 (because “ID fans overramped following electrical issue with #2 FDF”), or the 10-hour 417 MW forced immediate outage on May 12 (due to “low EHF pressure) did not make the cut.<sup>7</sup>

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<sup>7</sup> BREC Resp. to Sierra Club 2-10, Attachment (Wilson GADS Data).

Outages and derates due to a wide range of issues indicate an aging coal plant with many points of failure. This is all the more important, again, because Wilson is the “workhorse” of the generation fleet. If Wilson is unavailable due to a reliability failure, as was true for at least a month’s worth of time in 2023, more than a third of Big Rivers’ capacity is immediately offline. That’s an especial risk to reliability for Big Rivers’ customers at moments of high strain on the grid, such as Winter Storm Elliott—when Wilson dramatically underperformed and was not reliable. These issues will only grow more acute as Wilson nears the end of its lifecycle and various systems and parts grow more decrepit. Wilson demonstrated throughout 2022 that it is not reliable: it cannot be counted on to show up when it counts, particularly during times of severe stress on the grid.

The IRP process requires that Big Rivers assess reliability issues specifically. *E.g.*, 807 K.A.R. 5:058 § 8(5)(d). But Big Rivers has not done so with respect to Wilson. Instead, it appears to have outsourced that job to MISO and the EnCompass modeling, based on generalities about units rather than the specifics of the units that Big Rivers owns. *See* IRP at F-21 (2023 IRP reference to 807 K.A.R. 5:058 § 8(5)(d), “Chapter 9 MISO Resource Adequacy Planning and Section 7.1 Power Planning Model (EnCompass)”). There are two key flaws with this approach. First, in failing to assess Wilson’s *actual* recent performance, Big Rivers has erroneously fallen back on the idea that Wilson is as reliable as Big Rivers it was decades ago. *See* IRP at 18. But both the granular data and common sense regarding aging—of a car, a house, or a power plant—demonstrate that’s just not true.

Second, Big Rivers recognizes that the system “must remain reliable and resilient at all times and under all conditions,” and that “resource adequacy (capacity) does not guarantee energy sufficiency.” IRP at 59. Rather, a focus on “24 x 7 energy planning” is needed. *Id.*

However, Big Rivers discusses this issue in the context of MISO and fails to heed this advice with respect to its own generating units. It is plainly foreseeable that Wilson will continue to become more unreliable as it ages and that currently—as Winter Storm Elliott demonstrated—Big Rivers’ Kentucky customers cannot rely on Wilson in moments of greatest stress on the grid.

Big Rivers disserves its customers by failing to account for these issues in Wilson’s performance through 2045, or now, and inaccurately assuming that Wilson is currently reliable. The reliability issue is especially important given that this single unit currently makes up over a third of Big Rivers’ capacity and is the “workhorse” of Big Rivers’ fleet. The Commission should require Big Rivers to revisit this issue and account for Wilson’s reliability failures in its projections. This should occur before the scheduled date for the next IRP, given the significant reliability considerations at stake and the urgency of acting quickly on reliability matters, before severe strain on the grid causes a crisis. Big Rivers is inaccurately projecting the availability of current generation, leading to foreseeable inaccuracy in determining the time when retirement and replacement generation will be needed. The point of the IRP is to accurately forecast such needs.

**B. Big Rivers Has Failed to Analyze or Account for Obvious Environmental Regulation, Including Clean Air Act Regulations that IRP Regulation Requires Analyzing.**

Big Rivers recognizes the need to “remain[] at-the-ready to effectively address the legal, political, and technological challenges undoubtedly before it.” IRP at 92. states that environmental regulation creates “an uncertain regulatory future.” IRP at 91. But, repeatedly, Big Rivers fails to accurately account for environmental regulation in its IRP. Specifically, Big Rivers’ failure to factor in known environmental compliance risks in evaluating the long-term economic or legal viability is a significant failure in the IRP.

Big Rivers provides an “aggressive carbon-reduction portfolio,” which models the retrofitting of the Wilson facility and new planned generation with 90% carbon capture and sequestration (“CCS”) technology. IRP at 144. That scenario is apparently intended to account for *all* future environmental regulation. Big Rivers explains: “Future environmental regulations are uncertain, and to assess the impacts of environmental regulation without planning for a specific rule, an Aggressive Carbon Reduction (‘ACR’) Portfolio was also constructed.” *Id.* Additionally, the Encompass Portfolio Sensitivity includes “carbon emission dispatch adders” to account for uncertainties around “[e]nvironmental, political, and economic impacts on carbon emission regulations.” *Id.* at 148.

This approach, though, suffers from key failures. First, new Clean Air Act Section 111(d) proposed rules do not *require* CCS for coal-fired units. Rather, they provide a variety of paths for existing coal-fired units based on retirement in 2032, 2035, 2040, or beyond. If a utility commits to retiring a unit by 2035, for example, it can either commit to a 20% capacity factor limitation or meet an emissions rate consistent with 40% gas co-firing. Big Rivers has not evaluated this array of options to determine costs and benefits of the different paths, including the economics and ultimate cost to customers of each of the different options. This is particularly concerning given that each path implicates retirement date and that K.R.S. § 278.264 can require significant advance planning to ensure that a utility is in compliance with all requirements and able to secure retirement at the necessary time. Big Rivers’ lack of advance evaluation of the menu of options could lead to added costs for customers as the utility will need to take additional time to evaluate the rule’s impact—an action it apparently plans to take after the regulations are finalized and, possibly, any litigation is completed.

Second, Big Rivers has not accurately forecast foreseeable economic impacts not only of the Section 111(d) rules but also other pending or recently final regulations with the potential to impact Wilson in particular. These include the Good Neighbor Plan; a new proposed coal combustion residuals regulation; a new proposed rule regarding the effluent limitation guidelines; a new and now-finalized change to the National Ambient Air Quality Standards for fine particulate matter; and a proposed rule regarding the mercury and air toxics standards.

Big Rivers could and should quantify the impacts of those proposed rules now to assess potential environmental compliance economic impact on Wilson beyond carbon regulation. Failure to account for environmental regulatory risk means that Big Rivers' customers, and ultimately *their* customers, will risk being stuck paying for expensive retrofits that could have been planned for, and avoided, in advance.

Further, evaluation of the Section 111(d) rules, the Good Neighbor Plan, the change to the fine particulate matter NAAQS, and the mercury and air toxics standards proposed rule are all required by the regulations governing the IRP process. Utilities must discuss “[a]ctions to be undertaken during the fifteen (15) years covered by the plan to meet the requirements of the Clean Air Act amendments of 1990, and how these actions affect the utility’s resource assessment.” 807 K.A.R. 5:058 § 8(5)(f). The 1990 Clean Air Act amendments substantially overhauled the Clean Air Act to decrease air pollution and toxic emissions.<sup>8</sup> Kentucky regulation requires that Big Rivers engage with air environmental regulation directly and concretely in the IRP. The existing IRP does not do so.

### **1. Clean Air Act Section 111(d) Rules**

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<sup>8</sup> See EPA, 1990 Clean Air Act Amendment Summary, <https://www.epa.gov/clean-air-act-overview/1990-clean-air-act-amendment-summary>.

As Big Rivers recognizes, IRP at 92, in May 2023 the U.S. Environmental Protection Agency (EPA) proposed new carbon pollution standards in its Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants.<sup>9</sup> This proposed set of regulations is pursuant to section 111(d) of the Clean Air Act.<sup>10</sup> The rules, as proposed, will dramatically impact Wilson. Under the proposed rules, any coal-fired power plant intending to operate past 2040—such as Wilson—must install a CCS system that captures 90% of its carbon emissions by 2030.<sup>11</sup> Instead of adopting CCS, utilities can commit to retiring their plants by 2032, 2035, or 2040. If a utility commits to a coal-fired unit’s retirement by 2032, it need take no action beyond ensuring no increase in carbon emission.<sup>12</sup> If a utility commits to unit retirement by 2035, it must also *either* commit to a 20% annual capacity factor limit and ensure no increase in carbon emissions *or* meet an emission rate consistent with 40% gas co-firing.<sup>13</sup> If a utility commits to unit retirement by 2040, it must meet an emission rate consistent with 40% gas co-firing.<sup>14</sup>

These proposed changes represent significant planned shifts in the regulatory landscape for Wilson—and shifts that would happen on a fast time frame, within the planning period for this IRP. However, Big Rivers does not evaluate the viability of these possible courses of action for Wilson, attempt to quantify their financial costs for customers, or otherwise take into account

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<sup>9</sup> Proposed Rule, 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, 88 Fed. Reg. 33,240 (May 23, 2023), *available at* <https://www.federalregister.gov/documents/2023/05/23/2023-10141/new-source-performance-standards-for-greenhouse-gas-emissions-from-new-modified-and-reconstructed>.

<sup>10</sup> *Id.*; EPA, Fact Sheet: Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants Proposed Rule, <https://www.epa.gov/system/files/documents/2023-05/FS-OVERVIEW-GHG-for%20Power%20Plants%20FINAL%20CLEAN.pdf>.

<sup>11</sup> *Id.*

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

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

<sup>14</sup> *Id.*

this potential huge shift for planning purposes. This is despite noting “the exceptionally high costs of implementation (assuming implementation eventually becomes technologically feasible or financially viable)”—implicitly recognizing the potential for significant economic impacts on Big Rivers and its customers. IRP at 94-95. The IRP does not consider the possibility that the Clean Air Act section 111(d) rules will go into effect or plan accordingly for their significant potential impact on a third of Big Rivers’ generation capacity. Big Rivers stated in discovery that it “has not conducted a formal analysis of the potential amount or timing of costs to comply with EPA’s proposed greenhouse gas rule” and that “Big Rivers considers a cost analysis study premature until better and more definitive information becomes available on the viability of the aforementioned control technologies.”<sup>15</sup>

These rules create significant risk for continued operation of Wilson and for economic impact to Big Rivers’ customers, particularly if not adequately planned for in advance. Currently, Big Rivers should be weighing each of the paths in the proposed rule—evaluating the cost and effects on Big Rivers’ generation fleet for each option, in order to engage in responsible resource planning. These economic risks are foreseeable and quantifiable. The resource planning process, under Kentucky regulation, requires analysis of them—so that Big Rivers can include these costs in its projections, compare future costs of Wilson against replacement generation using more accurate predictions, and plan for an affordable and reliable future generation fleet.

## **2. Cross-State Air Pollution Rule and Good Neighbor Plan**

Big Rivers recognizes that “[s]ince its inception in 2015, CSAPR [the Cross-State Air Pollution Rule] has undergone numerous changes resulting in significant impacts to Big Rivers’ operation of its units and causing uncertainty about the status of operations in the near future.”

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<sup>15</sup> BREC Resp. to Joint Intervenors 1-60(b).

IRP at 95. EPA’s proposed Good Neighbor Rule, an outgrowth of CSAPR, regulates smog-forming nitrogen oxide (NOx) pollution from power plants in 23 states, including Kentucky. As Big Rivers states, the Good Neighbor Rule is not currently in effect for Kentucky due to ongoing litigation. In determining unit-level allowance allocations before that litigation, EPA provided an illustrative 2026 NOx ozone season allocation for Wilson of 393 tons, roughly a one-third reduction from Wilson’s 2023 allocation of 609 tons.<sup>16</sup>

Thus, Big Rivers recognizes that there is “uncertainty” about near-term Big Rivers operations due to CSAPR and that CSAPR has caused “significant impacts to Big Rivers’ operation” already. However, again Big Rivers fails to account for the economic risk of environmental regulation and the magnitude of effect on cost or the viability of continued operation of Wilson. Instead, “Given the ongoing legal proceedings . . . Big Rivers has not conducted any . . . formal evaluation or analysis” of the impact of the Good Neighbor Rule on Big Rivers’ operations.<sup>17</sup>

### **3. Coal Combustion Residuals**

Big Rivers also notes that in May 2023, EPA proposed a new rule with new regulatory requirements for coal combustion residual management at regulated facilities.<sup>18</sup> Again, however, Big Rivers fails to account for the economic risk of environmental compliance in its resource planning. Big Rivers’ IRP states only, “Big Rivers is currently reviewing the details of the proposed rule and is involved with various trade industry groups in litigation challenging the

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<sup>16</sup> EPA, Cross-State Air Pollution: Good Neighbor Plan for 2015 Ozone NAAQS, Technical Support Document, Unit-Level Allocations and Underlying Data for the Proposed Rule, *available at* <https://www.epa.gov/Cross-State-Air-Pollution/good-neighbor-plan-2015-ozone-naaqs>.

<sup>17</sup> BREC Resp. to Joint Intervenors 1-58(b).

<sup>18</sup> EPA, Proposed Rule, Hazardous and Solid Waste Management System: Disposal of Coal Combustion Residuals From Electric Utilities; Legacy CCR Surface Impoundments, 88 Fed. Reg. 31,982 (May 18, 2023), *available at* <https://www.federalregister.gov/documents/2023/05/18/2023-10048/hazardous-and-solid-waste-management-system-disposal-of-coal-combustion-residuals-from-electric>.



proposed rule.” IRP at 100. In discovery, Big Rivers took the position that because the rule has not yet been finalized “[i]t would therefore be premature for Big Rivers to attempt to ‘identify’” “legacy ponds” and “CCR Management Units” at Big Rivers generating stations.<sup>19</sup>

#### **4. Additional Environmental Regulations Not Accounted For By Big Rivers’ IRP**

Big Rivers’ IRP does not account for economic risk and risk to continued operation of Big Rivers’ units, particularly Wilson, in additional major areas. Specifically:

**Supplemental Effluent Limitations Guidelines and Standards (ELGs)** for the Steam Electric Power Generating Point Source Category, is a proposed rule published by the EPA on March 29, 2023.<sup>20</sup> This proposed rule revises the ELGs for steam electric plants such as Wilson, including revisions to guidelines and standards applicable to flue gas desulfurization wastewater, bottom ash transport water, combustion residual leachate, and legacy wastewater.<sup>21</sup> Despite this proposed rule’s publication in March 2023, Big Rivers indicated that it did not evaluate economic or other risk related to the rule before the promulgation of the IRP: Big Rivers stated in discovery that it “plans on conducting a comprehensive study of the rule in 2024 to identify corresponding impacts.”<sup>22</sup>

**Reconsideration of the National Ambient Air Quality Standards (NAAQS) for Particulate Matter**, was a proposed rule published by the EPA on January 27, 2023, prior to Big

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<sup>19</sup> BREC Resp. to Joint Intervenors 1-59.

<sup>20</sup> EPA, Proposed Rule, Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 88 Fed. Reg. 18,824 (March 29, 2023), *available at* <https://www.federalregister.gov/documents/2023/03/29/2023-04984/supplemental-effluent-limitations-guidelines-and-standards-for-the-steam-electric-power-generating#citation-182-p18888>.

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

<sup>22</sup> BREC Resp. to Joint Intervenors 1-57.

Rivers' submission of the IRP.<sup>23</sup> The proposed rule would have reduced the level of primary annual fine particulate matter (PM 2.5) from 12 micrograms per cubic meter to the range of 9-10 micrograms per cubic meter, for purposes of the NAAQS.<sup>24</sup> On February 7, 2024, EPA announced that its final rule will in fact revise the primary annual PM 2.5 standard to 9 micrograms per cubic meter, a significant reduction.<sup>25</sup> Note that in the finalized rule, the EPA chose the most stringent of the two available options. While this rule does not directly regulate Big Rivers or other utilities, it does tighten air pollution standards and thus is likely to require new regulation.

Amendment of the National Emission Standards for Hazardous Air Pollutants for Coal- and Oil-Fired Electric Utility Steam Generating Units, commonly known as the **Mercury and Air Toxics Standards (MATS)**, is a proposed rule published by the EPA on April 24, 2023.<sup>26</sup> This proposed rule strengthens the standards for filterable particulate matter (fPM) and requires coal-burning plants to comply with the fPM standard.<sup>27</sup> Big Rivers has not analyzed the cost of the proposed rule because “that rule has yet to be finalized” and so, in its view, “any cost analysis is premature.”<sup>28</sup> For each of these regulations, Big Rivers could and should determine an

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<sup>23</sup> EPA, Proposed Rule, *Reconsideration of the National Ambient Air Quality Standards for Particulate Matter*, 88 Fed. Reg. 5,558 (Jan. 27, 2023), <https://www.federalregister.gov/documents/2023/01/27/2023-00269/reconsideration-of-the-national-ambient-air-quality-standards-for-particulate-matter>.

<sup>24</sup> *Id.*

<sup>25</sup> EPA, Final Rule, *Reconsideration of the National Ambient Air Quality Standards for Particulate Matter*, <https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-final-frn-pre-publication.pdf> (pre-publication version signed Feb. 5, 2024); *see also* EPA, Final Rule to Strengthen the National Air Quality Health Standard for Particulate Matter: Fact Sheet, <https://www.epa.gov/pm-pollution/final-reconsideration-national-ambient-air-quality-standards-particulate-matter-pm>.

<sup>26</sup> EPA, Proposed Rule, *National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review* (Apr. 24, 2023), <https://www.federalregister.gov/documents/2023/04/24/2023-07383/national-emission-standards-for-hazardous-air-pollutants-coal--and-oil-fired-electric-utility-steam>.

<sup>27</sup> *Id.*

<sup>28</sup> BREC Resp. to Sierra Club 1-11.

estimated preliminary cost—in order to quantify the anticipated cost of environmental compliance and plan appropriately to ensure customers are set up for affordable future rates.

**C. Big Rivers Has Reflexively Adopted CCS For Wilson Despite Its Expense and Its Extension of Wilson’s Life Under Big Rivers’ Own Modeling Only Three Years Beyond 2040.**

It’s true, as Big Rivers asserts, that the Inflation Reduction Act increases the 45Q tax credit for CCS investments from \$50 per metric ton captured to \$85 per metric ton captured. Nevertheless, the installation of CCS technology at Wilson would still be extraordinarily expensive. EPA’s cost calculations, published as part of its proposed 111(d) rulemaking, make clear that even with the IRA’s enhanced tax credit, the installation of CCS technology at Wilson would impose many millions of dollars of additional costs on customers.<sup>29</sup> Indeed, the capital costs for installation of CCS for Wilson would exceed \$2,500/kW.<sup>30</sup> Moreover, even accounting for the Inflation Reduction Act’s 45Q \$85 per ton tax credit, installation and operation of CCS would cost \$24 per MWh or \$25 per ton removed.<sup>31</sup> This is a *significant* cost, given that Wilson emits millions of tons annually. CCS installation would also lead to a 281 MW derate for Wilson.<sup>32</sup> Even with the 45Q tax credit, installing and operating CCS would impose a significant cost on customers. Importantly, this information is publicly available—and this conversation should occur in public, where Big Rivers’ customers and their customers can freely have access to information about the extraordinary expenses that Big Rivers anticipates imposing to keep an unreliable unit fraught with environmental compliance risks online. Big Rivers should publicly

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<sup>29</sup> EPA Doc. EPA-HQ-OAR-2023-0072-0061\_attachment\_3, available at [https://downloads.regulations.gov/EPA-HQ-OAR-2023-0072-0061/attachment\\_3.xlsx](https://downloads.regulations.gov/EPA-HQ-OAR-2023-0072-0061/attachment_3.xlsx).

<sup>30</sup> *Id.*

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

<sup>32</sup> *Id.*

account for its CCS figures and explain any discrepancy in cost between what EPA has projected and what Big Rivers anticipates.

Further, Big Rivers' own projections view the Wilson unit as "no longer economically viable" in 2044, following the expiration of the 45Q tax credits. In other words, Wilson must install carbon capture under the Section 111(d) proposed rules because it anticipates staying online beyond 2040—but this expense of millions of dollars, ultimately accruing to customers, will extend its life by only 4 years after 2040 under Big Rivers' own projections. This raises very serious concerns about prudence and reasonableness of adoption of CCS, and certainly requires that Big Rivers engage in a full evaluation of *all* options—including retirement of Wilson and replacement with new generation on a faster timeline than currently anticipated.

### **III. Big Rivers' IRP Fails to Fully Account for the Effects of the Inflation Reduction Act and the Potential Benefits of Renewable Generation**

Finally, Big Rivers has not sufficiently accounted for the impact of the Inflation Reduction Act (IRA) in its resource planning. For example, Big Rivers has failed to conduct analysis of the potential benefits of the IRA to its generation portfolio.<sup>33</sup> Big Rivers states it "has not considered the availability of the Low-Income Communities Bonus Credit Program."<sup>34</sup> Big Rivers has not sought financing through the Energy Infrastructure Reinvestment Program,<sup>35</sup> and it has not sought financing from the Rural Energy for America Program.<sup>36</sup> Similarly, the IRP does not allow for selection from a wide range of renewable generation—including renewable generation to replace the Green units. These are significant failures, potentially leaving dollars on the table that could accrue to the benefit of Kentucky customers.

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<sup>33</sup> BREC Resp. to Sierra Club 2-5.

<sup>34</sup> BREC Resp. to Joint Intervenors 1-16.

<sup>35</sup> BREC Resp. to Joint Intervenors 1-14.

<sup>36</sup> BREC Resp. to Joint Intervenors 1-15.

## CONCLUSION

For all these reasons, the Commission should require that Big Rivers return to the drawing board and conduct an adequate IRP correcting these deficiencies. In particular, the Commission should direct that Big Rivers focus on determining an appropriate retirement date for Wilson to ensure affordable and reliable electric service for Big Rivers' customers.

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**CERTIFICATE OF SERVICE**

This is to certify that the foregoing copy of Sierra Club's comments are being electronically transmitted to the Commission on March 8, 2024, and that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding.

/s/ Joe F. Childers  
JOE F. CHILDERS