REDACTED

Big Rivers Electric Corporation
710 West 2nd Street
Owensboro, KY 42301
www.bigrivers.com

September 15, 2023

Letter of Interest
Empowering Rural America (New ERA) Program

Pursuant to the Notice of Funding (NOFO) published in the Federal Register on May 16, 2023 and the announcement on July 27, 2023 of the application window, Big Rivers Electric Corporation (Big Rivers) submits this Letter of Interest (LOI) in New ERA Program funding to support installation of a carbon capture and sequestration project at its D.B. Wilson Generating Station. This project will ensure rural Kentuckians' access to affordable, reliable, and clean energy while reducing Greenhouse Gas (GHG) emissions. Big Rivers hereby represents that it meets all the requirements as specified in the NOFO and herewith submits the information required to comply with the first step of the application process.

a. Big Rivers Organizational Profile and Point of Contact Information

1. Legal Name

   Big Rivers Electric Corporation
   Big Rivers, a nonprofit generation and transmission electric cooperative (G&T), is submitting this LOI as a single entity for projects meeting requirements for Category II. As a G&T, Big Rivers is owned by its three member distribution cooperatives.

2. Address, Principal Place of Business, and website

   Principal Place of Business:
   710 West 2nd Street
   Owensboro, KY 42301

   Mailing Address:
   P.O. Box 20015
   Owensboro, KY 42304

   www.bigrivers.com

3. Tax Identification Number: 61-0597287
   Unique Entity Identifier (UEI): HRWMV8MNK9A5

   Verified eAuthentication Account: Yes

4. Big Rivers is an existing RUS borrower.

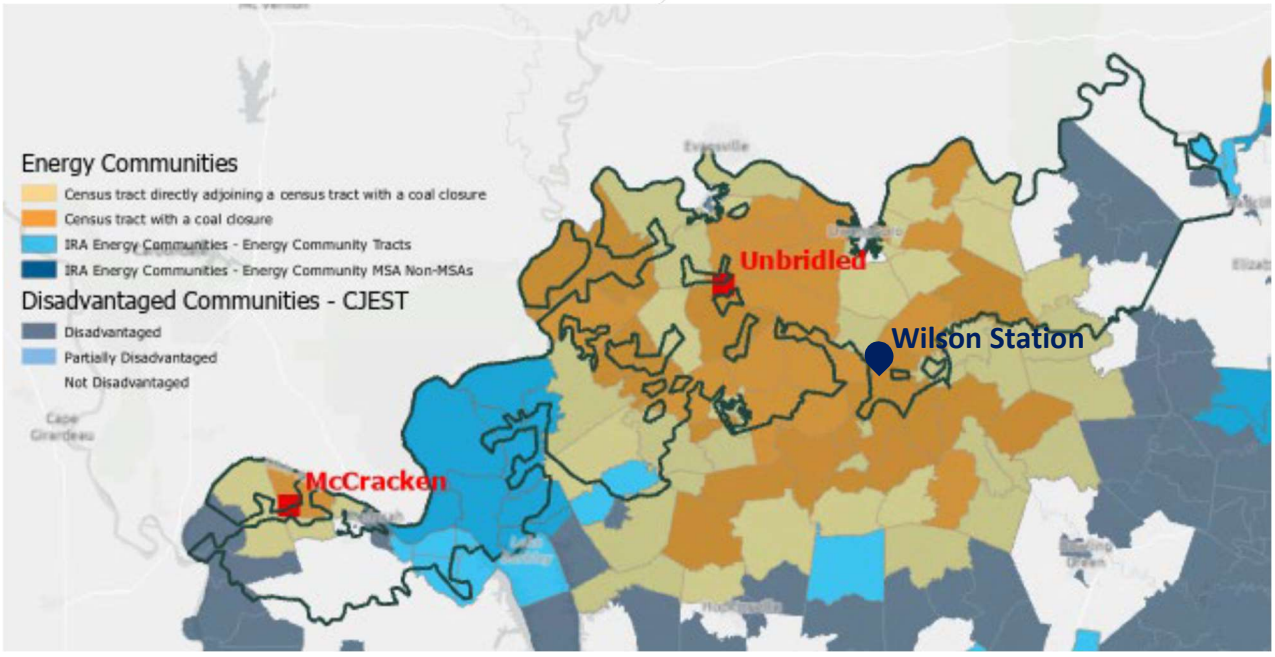
5. Point of Contact

Erin M. Murphy
Vice President Federal & RTO Regulatory Affairs
Big Rivers Electric Corporation
710 West 2nd Street
Owensboro, KY 42301
erin.murphy@bigrivers.com
270-844-6181 – office
202-641-4397 - mobile

6. Project Name: Project Wildcat (Wilson Station CCS)

7. Project Location & Applicable Service Area

Big Rivers' D.B. Wilson Generating Station (Wilson Station) is located in Centertown, Kentucky in Ohio County. Big Rivers' service area encompasses all or portions of 22 western Kentucky counties. The figure below identifies the project location and applicable service area data within the Shapefiles submitted concurrently with this LOI.



The data in the Shapefiles further support both Big Rivers' designation as serving a rural area as well as meeting the requirements for Category II with 50 percent or more of the

population served by the proposed service area is located within (1) Energy Communities or (2) Distressed or Disadvantaged Communities.

Project Wildcat will install scrubbing technology on a key generating resource in Big Rivers' portfolio. Accordingly, this project will benefit the entirety of Big Rivers' service territory. Over three-quarters of Big Rivers' service territory is classified as an Energy Community, or a Distressed or Disadvantaged Community. The supporting data is provided below:

- Big Rivers Service Territory Population: 240,210
- Energy, Distressed or Disadvantaged Community Population: 182,994 (76%)

b. Award Statement

Big Rivers is an existing RUS borrower and seeks a System Award.

c. Big Rivers Net Asset Value

As of December 31, 2022, Big Rivers' net asset value is $965,868,138.34. Big Rivers certifies that it has not been placed in receivership, liquidation, been under a workout agreement, declared bankruptcy, nor has had a decree or order issued for relief in any bankruptcy, insolvency, or other similar action over the last 10 years.

Big Rivers has included with this LOI submission a copy of its balance sheet and income statements for the past three (3) years.

d. Financial Assistance

1. New ERA Funding Request
   Big Rivers seeks a combination funding request of a 25% grant and a 0% loan for the total capital cost of Project Wildcat. Section B.5.ii.a of the NOFO states "Applicants may request interest rates as low as zero percent on […] the loan portion of a loan and grant combination […] where an eligible Project(s) contained in the New ERA Application: […] (2) 40 percent or more of the population served by the proposed service area is located within Distressed Communities, Disadvantaged Communities, or Energy Communities." *See Notice of Funding Opportunity for the Empowering Rural America (New ERA) Program,* 88 Fed Reg 31218 (May 16, 2023). As noted above in section a.7, 76% of the population served by Wilson Station is located within Distressed or Disadvantaged Communities or Energy Communities. Accordingly, Big Rivers is eligible for a zero percent loan pursuant to the New ERA Program.

   At this time, the conservative capital estimate for Project Wildcat is $2.52B. Accordingly, Big Rivers seeks the following financial assistance for the project:

Total Estimated Capital Cost	$2.5B
25% Project Grant	$630M
0% Project Loan	$1.89B

As described in more detail below at section h-5, as a result of funding from New ERA stacked along with 45Q tax credits and strong cost and project management, this project could be cost neutral or slightly cost positive.

2. Other Sources of Federal Funding

Big Rivers intends to use the IRS 45Q tax credit. The 45Q tax credit is $85/ton, and based on the initial scope, Project Wildcat would capture 1.84 million tons of CO_2e per year, which equals $165M per year or $1.98B over the life of the project in tax credits.

Big Rivers is exploring other potential sources of funding through Infrastructure Investment and Jobs Act, specifically for CO_2 transportation and storage site development. Big Rivers will provide further details of those sources, as well as funding status in its full Application.

e. Statement on Foreign Ownership Interest

No foreign entity or foreign person has an ownership interest voting interest, management rights, or equity interest in Big Rivers or any rights in the proposed project.

f. Estimated GHG Reduction from the Portfolio of Actions

Big Rivers has used the Achievable Reductions Tool (ART) provided by the USDA to determine Project Wildcat's estimated GHG Reduction. Table 1 and Table 2 summarize the output of the ART and shows that Project Wildcat would provide significant GHG reductions on an annual basis and lifetime basis, respectively. The full completed ART calculator has been submitted along with this LOI.

Table 1: Annual GHG Reduction Estimates from ART

Annual GHG Reduction (Tons CO2e)	1,940,000
Annual GHG Avoided (Tons CO2e)	392,082
Annual Tons Reduced and Avoided	2,332,082

These reduction estimates reflect a 47.9% annual GHG reduction and a 52.6% decrease in carbon intensity.

Over the lifetime of the project, Project Wildcat would yield the following estimated reductions:

Table 2: Project Lifetime GHG Reduction Estimates from ART

Total GHG Reduction (Tons CO2e)	23,280,000
Total GHG Avoided (Tons CO2e)	5,472,801
Total Tons Reduced and Avoided	28,752,801

These lifetime reduction estimates reflect GHG reduction of 41.2%.

g. Big Rivers' Total Utility Plant as of December 31, 2022: $2,061,714,741.90

h. Technical Description of the Project

1. *A description of the Project(s) to be funded under this notice, types of funding being requested, and the anticipated amounts for such funding.*

   Big Rivers' Wilson Station is a 420 MW coal-fired electric generating station located in southwestern Kentucky. The station was brought online in 1984 and the cooperative anticipates continuing to run this plant through 2045. Big Rivers has determined that the most effective way to lower emissions from its generation and reliably serve its load is to add carbon capture to Wilson Station. Accordingly, Big Rivers seeks New ERA program funding to acquire, retrofit the existing systems, and operate a carbon capture and storage system to drastically lower the Carbon Dioxide equivalent (CO_2e) emissions from the Wilson Station.

   Without such funding, and in the absence of further regulatory or market factors, the Wilson station will continue to operate and provide reliable, low cost, high-emissions electricity to members of Federally designated Justice 40 and IRA-defined Energy communities for approximately the next two decades. Funding through the new ERA program and Big Rivers' interest in carbon capture technologies represent an opportunity to increase energy equity, lower local criteria air pollution from status quo operations, and provide the Federal government with a test case for baseload operation of utility scale carbon capture technologies, a key component of the IRA's de-carbonization programs. The following analysis provides a high-level overview of the proposed project characteristics and potential savings for USDA RUS review and consideration.

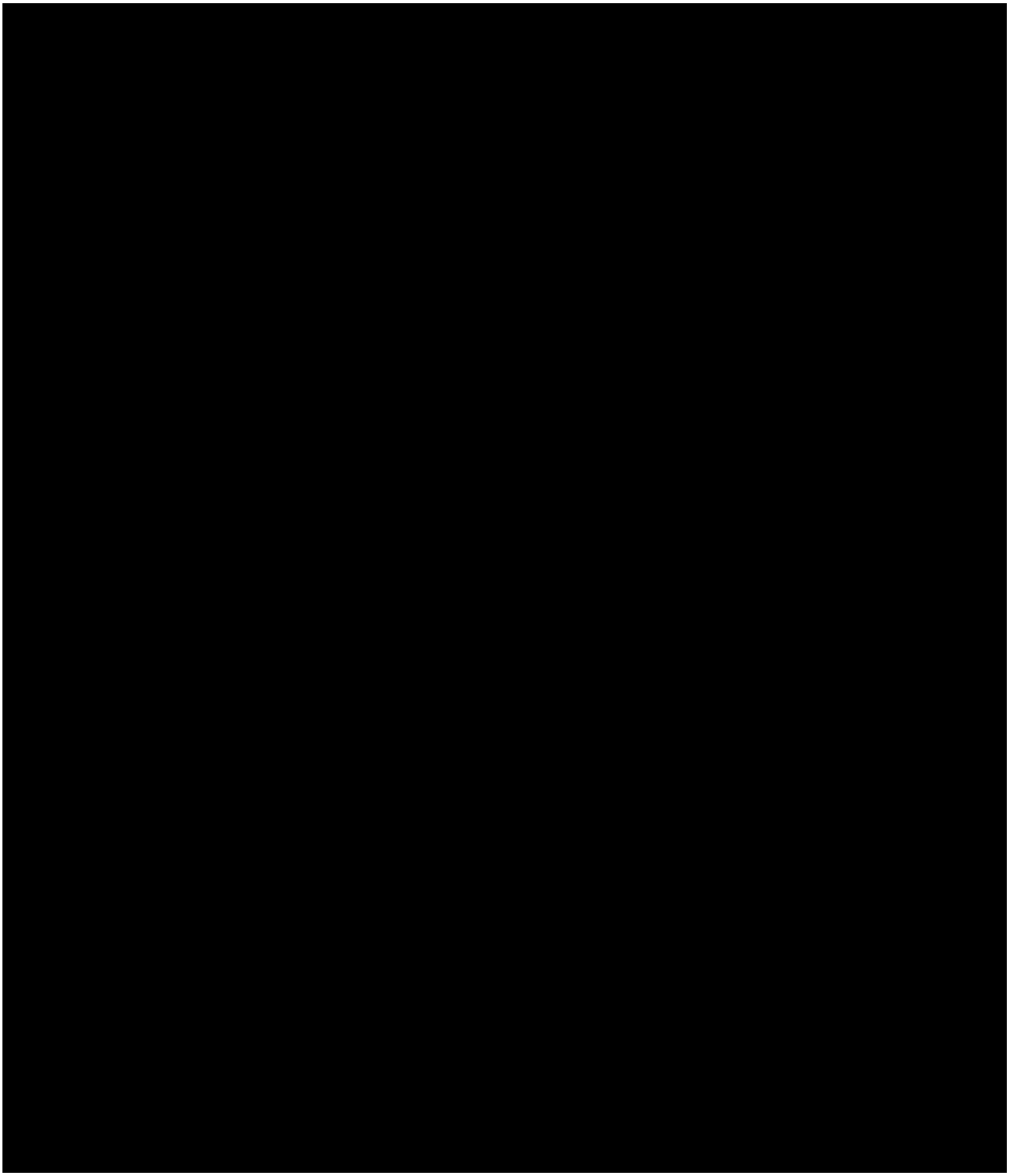
2. *A description of other actions related to the Project(s), but not funded by this proposal that will allow the Eligible Entity to reduce its total GHG emissions (e.g., fuel switching to lower GHG-emitting sources).*
   Big Rivers is leading the Commonwealth of Kentucky in de-carbonization of its energy fleet. Big Rivers has a slice-of-system 178 MW hydro power contract with Southeastern Power Administration. Additionally, in 2019, Big Rivers retired and demolished its Coleman units, legacy coal-fired generation with net output of 443 MW. Big Rivers continues to reliably diversify its generating fleet and currently is pursuing two renewable projects in its footprint. Big Rivers has an executed Power Purchase Agreement with Unbridled Solar/National Grid Renewables for a 160 MW solar project, expected to be in service in late 2024 or early 2025. Additionally, Big Rivers has proposed a 100 MW solar facility and 50 MW battery in McCracken County, Kentucky, with an in service date of 2028. On July 10, 2023, Big Rivers submitted a Letter of Interest for the PACE Program and proposed both the Power Purchase Agreement and the McCracken County solar project for funding and Big Rivers is awaiting an invitation to submit a full application for those projects.

   Big Rivers has taken significant and highly effective steps to achieve other environmental goals at Wilson Station. Key projects at Wilson Station cost-effectively reduced emissions, decreased effluent, and essentially eliminated solid waste from the plant. In 2023, Big Rivers completed a move of the scrubber at the retired Coleman Station to Wilson Station, installed a new dewatering system to produce market-grade synthetic gypsum, and added a new wastewater system to remove chlorides from the Flue Gas Desulfurization, ultimately improving SO_2 removal from 92% to 98%. While implementing these projects, Big Rivers decreased variable O&M costs by approximately $2/MWh, resulting in an annual $2M savings in O&M costs. Big Rivers has a proven record for cost-effectively implementing environmental technologies to decrease emissions from Wilson Station.

3. *A description of the Portfolio of Actions (not exceeding 1,500 words) including a summary of the technical aspects of the various actions that will allow RUS to measure the reduction of GHG emissions resulting from the Portfolio of Actions.*
   Carbon Capture and Storage System

[redacted]

[1] https://www.regulations.gov/document/EPA-HQ-OAR-2023-0072-0061



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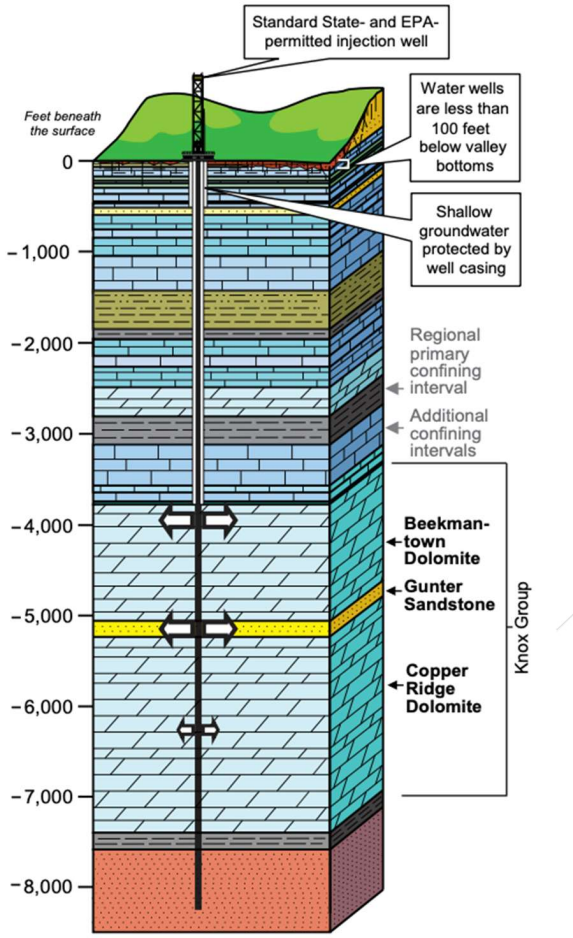

Figure 1: Marvin Blan No. 1 Well Cross Section

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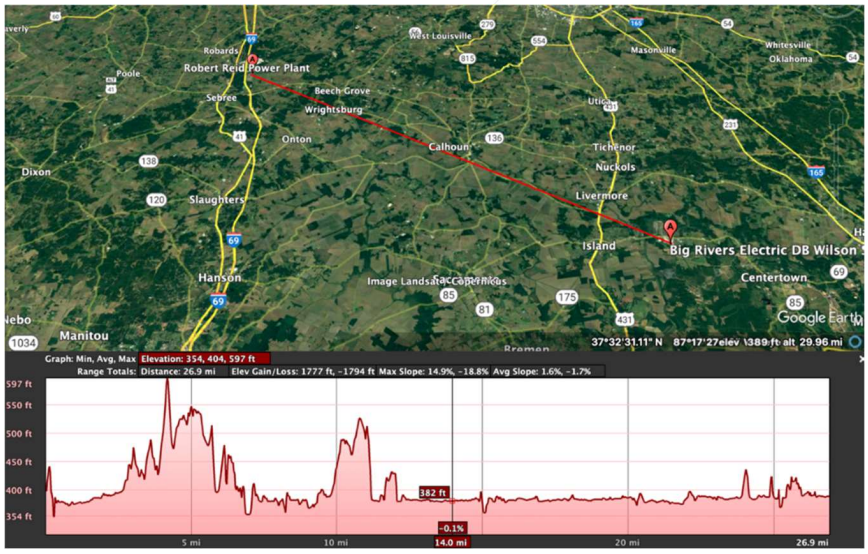


Figure 2: Distance and topography between Big Rivers' Generating Stations

[redacted]

[redacted]

[redacted]

4. *The amount of the GHG emissions reductions under the evaluation criteria as provided in (f) above.*
   Utilizing the USDA ART calculator, the project is projected to capture and sequester approximately 2.33 million tons of CO_2e per year. Equating to approximately 28.75M tons of total captured and sequestered CO_2e throughout the project's 12-year projected life. The associated ART calculator is included in this submission for USDA review.

5. *The Eligible Entity must also provide sufficient detail for RUS to determine that the Portfolio of Actions satisfies the technical requirements for this program and is consistent with industry standards and prudent utility practices.*

   Reliability Statistics
   Big Rivers reliability metrics continue to exceed expectations. Since 2019, the System Average Interruption Duration Index (SAIDI) for transmission caused interruptions has averaged 3.63 minutes. The Customer Average Interruption Duration Index (CAIDI) has averaged 34.66 minutes for the same period. This performance is the result of a high level of coordination and collaboration between the transmission and generation teams at Big Rivers. Overall, a robust transmission system with internal base-load generation allows Big Rivers to limit reliance on neighboring systems and provide this high-level performance. Continued operation of the Wilson Station ensures reliable and cost-effective energy supply into the future.

   Wilson Stations' Unit 1 is Big Rivers' most efficient generator and it operates consistently at a high capacity factor. From 2018 through 2022, Wilson 1's Gross Output Factor (GOF) is greater than 87% while being dispatched above 90% of the year and continually meeting generating heat rate targets. During this same time period, Wilson achieved the second best Equivalent Forced Outage Rate in is operating history, further proving it provides low cost and reliable electricity supply to members throughout the surrounding counties.

Cost Effectiveness Tests

[redacted]

[redacted]

[redacted]

Justice 40 impacts

The Wilson Station is located in an Energy Community, as defined by the IRA, due to a coal mine closure. Energy Community Tax Credit Bonus applies a bonus of up to 10% (for production tax credits) or ten percentage points (for investment tax credits) for projects, facilities, and technologies located in energy communities. Figure 3 shows Wilson Station's location on the Federal Energy Communities Designation Map.

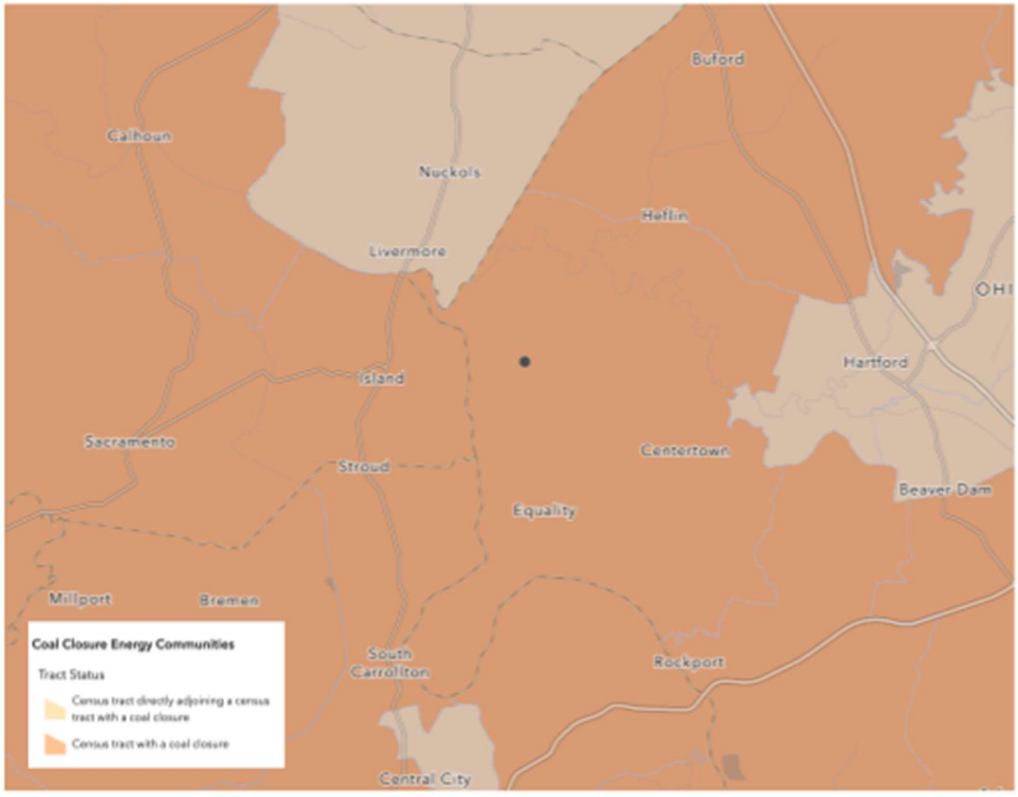


Figure 2: Federal Energy Communities Designation Map

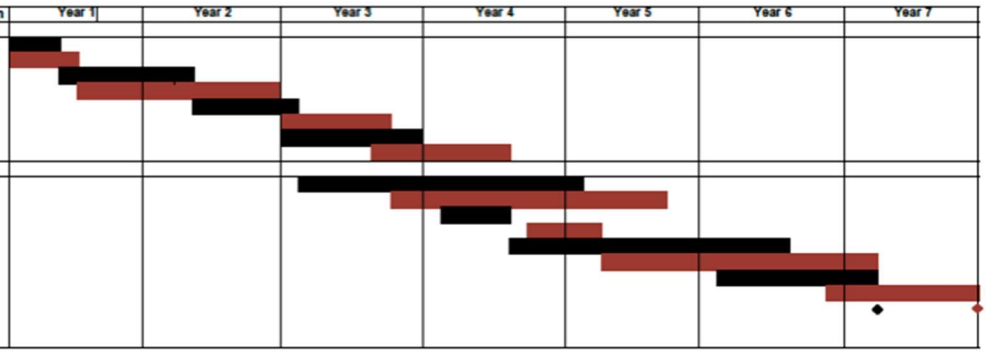
The Census tract in which Wilson Station is located, tract 21183920700, is also identified as disadvantaged because it meets more than one burden threshold and the associated socioeconomic threshold. Census tract 21183920700 meets five Justice40 criteria, including: Climate Change (expected agricultural loss); Health (heart disease); Transportation (transportation barriers); Legacy Pollution (abandoned mine); and water and wastewater (wastewater discharge). The Census tract is also in 82nd percentile for low-income communities.

Figure 3: White House Justice40 Community Map

i. Timeline

[redacted]

No.	Description	Baseline Duration	Extended Duration
Project Development			
1	Feasibility Evaluation (Technical and Economic Analysis)	24 weeks	36 weeks
2	FEED Study (Pre-FEED and/or Full-FEED)	52 weeks	78 weeks
3	Technical / Commercial Arrangements (Project Financing)	39 weeks	39 weeks
4	Permits	52 weeks	52 weeks
Project Implementation			
5	Detailed Engineering and Procurement	104 weeks	104 weeks
6	Site Work/Mobilization	26 weeks	26 weeks
7	Construction	104 weeks	104 weeks
8	Startup, Commissioning, and Testing	60 weeks	60 weeks
9	Commercial Operation	Milestone (325 weeks from project start)	Milestone (364 weeks from project start)



Big Rivers understands RUS reserves the right to ask Eligible Entities for clarifying information on, or additional information or documentation related to, the LOI. If invited to apply to the New ERA program by received of an Invitation to Proceed, Big Rivers commits to developing a proposal that achieves the greatest reductions in GHG emissions in a way that promotes resiliency and reliability for rural electric systems and affordability for their members. Big Rivers agrees to comply with the requirements of the New ERA program as outlined in the NOFO.

Lastly, Big Rivers commits to immediately notify RUS in writing should it decide to withdraw from consideration for New ERA Program funding before submitting the complete application.

Sincerely,

Robert W. Berry
President & CEO
Big Rivers Electric Corporation