ORIGINAL

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF BIG RIVERS ELECTRIC CORPORATION FOR APPROVAL OF SOLAR POWER CONTRACTS	)))	Case No. 2020-00183

Response to the Office of the Attorney General's First Request for Information dated August 6, 2020

FILED: August 14, 2020

ORIGINAL

BIG RIVERS ELECTRIC CORPORATION

ELECTRONIC APPLICATION OF
BIG RIVERS ELECTRIC CORPORATION
FOR APPROVAL OF SOLAR POWER CONTRACTS
CASE NO. 2020-00183

VERIFICATION

I, Mark J. Eacret, verify, state, and affirm that the information request responses filed with this verification for which I am listed as a witness are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Mark J. Eacret

Mark J. Eacret

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Mark J. Eacret on this the 14th day of August, 2020.

Joy P. Parsley

Notary Public, Kentucky State at Large

My Commission Expires ____________

Notary Public, Kentucky State-At-Large
My Commission Expires: July 10, 2022
ID: 604480

BIG RIVERS ELECTRIC CORPORATION

ELECTRONIC APPLICATION OF
BIG RIVERS ELECTRIC CORPORATION
FOR APPROVAL OF SOLAR POWER CONTRACTS
CASE NO. 2020-00183

VERIFICATION

I, Paul G. Smith, verify, state, and affirm that the supplemental data request responses filed with this verification for which I am listed as a witness are true and accurate to the best of my knowledge, information, and belief formed after a reasonable inquiry.

Paul Smith
____
Paul G. Smith

COMMONWEALTH OF KENTUCKY)
COUNTY OF HENDERSON)

SUBSCRIBED AND SWORN TO before me by Paul G. Smith on this the 14th day of August, 2020.

Joy P. Parsley
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Notary Public, Kentucky State at Large

My Commission Expires ____________

Notary Public, Kentucky State-At-Large
My Commission Expires: July 10, 2022
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Item 1) ***Refer to the Application, page 4, lines 17 - 21. BREC asserts that the solar contracts are necessary to allow BREC to fulfill its wholesale power obligations to its members, and to have the power available to satisfy the requirements of its native load and its existing contracts to supply power to Owensboro Municipal Utilities and Kentucky Municipal Energy Agency.***

a. ***Explain in detail if BREC specifically has to obtain solar energy to satisfy the requirements of its native load, or if BREC could utilize any type of energy to provide energy to its native load. Explain the answer is full detail, including the names of all customers that are requiring BREC to obtain solar energy.***

b. ***Explain in detail if BREC specifically has to obtain solar energy to satisfy the requirements of its existing contracts, or if BREC could utilize any type of energy to provide energy to its existing contracts. Explain the answer in full detail, including all contract customers that are requiring BREC to obtain solar energy.***

c. ***If specific customers are requesting or demanding solar energy, will those customers be required to pay for 100% of the solar energy costs? If not, why not.***

d. ***Compare and contrast the cost that BREC will incur purchasing energy pursuant to the solar contracts versus if BREC were instead to purchase energy from non-renewable sources.***

e. ***Explain in detail whether BREC currently has any solar energy on its system.***

Response)

a. Big Rivers is not required to obtain solar energy for its current Member–Owners. However, solar is currently the lowest cost alternative, even lower than the current market.

b. Big Rivers is not required to obtain solar energy for any of its existing contracts. However, solar is currently the lowest cost alternative; even lower than the current market.

c. Not applicable.

d. Exhibit Eacret–15 to my testimony compared the value of the energy, capacity, and renewable energy certificates received under the solar contracts to the current market value of those commodities. As noted on page 38 of my testimony, the result of that comparison showed a net present value of the benefit to Big Rivers' Members of between [redacted].

e. Big Rivers has 120 kW of solar demonstration/education projects spread across seven sites. Four are located at Big Rivers' Member offices, plus one each at a middle school, a high school, and a public park. More information can be found at the Big Rivers Solar Education Center website at www.solar.bigrivers.com.

Additionally, there is another 2,613 kW owned by individual retail members of Big Rivers' Member-Owners spread across 190 sites.

Witness) Mark J. Eacret

Item 2) ***Refer to the Application, pages 4 – 6, and page 12, lines 5 - 6. BREC states that the solar contracts will further support BREC's obligations to make available to Meade County RECC the electrical power and energy required under the retail electric service agreement between Meade County Rural Electric Cooperative Corporation (RECC) and Nucor Corporation ("Nucor"), which is currently pending Commission approval. BREC further states that the solar contracts are needed to satisfy BREC's obligations under the Nucor Contract. Further refer to the Direct Testimony of Mark Eacret (Eacret Testimony), page 6, lines 4 – 6, wherein Mr. Eacret states that in order to comply with the Nucor agreement, BREC issued a request for proposals on June 3, 2019, to start the competitive bidding process for a solar power purchase agreement.***

a. Explain in detail how the solar contracts will support the electric service agreement between Meade County RECC and Nucor.

b. What percentage of the solar power obtained from the solar contracts will be used to satisfy BREC's obligations under the Nucor

Contract, if any, versus satisfying the requirements of its native load and existing contracts, if any.

c. Would BREC be entering into solar contracts if not for the above-referenced agreement with Nucor?

d. Explain whether any portion of the power procured under the solar contracts would be dedicated exclusively to meeting the Nucor load. If not, will all power procured under the contracts be used to meet BREC's needs in general?

Response)

a. As fully discussed in the Direct Testimony of Robert W. Berry in Case No. 2019-00365,[1] and summarized in my testimony in this case beginning on page 5, [redacted]

[1] See *In the Matter of: Electronic Application of Big Rivers Electric Corporation for Enforcement of rate and Service Standards* – Case No. 2019-00269. Application filed July 30, 2019.

[redacted].

b. [redacted]. Beyond that, the entire benefit of the solar contracts will flow to Big Rivers' Members, either through Big Rivers' Fuel Adjustment Clause or the margin-sharing mechanism recently approved in Case No. 2020-00064.[2]

c. Yes, Big Rivers would be entering into the solar agreements even without the Nucor contract, but the timing would be different. Occasionally, solar

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[2] See *In the Matter of: Electronic Application of Big Rivers Electric Corporation for Approval to Modify its MRSM Tariff, Cease Deferring Depreciation Expenses, Establish Regulatory Assets, Amortize Regulatory Assets, and Other Appropriate Relief* – Case No. 2020-00064. Application filed February 28, 2020.

developers have called on Big Rivers and made presentations, but the prices quoted were generally between [redacted]. [redacted]

d. See Big Rivers' response to sub-part b, above.

Witness) Mark J. Eacret

Item 3) ***Refer to the Application, page 6, lines 18 - 20. BREC asserts that diversifying its power supply portfolio is important to reduce the risk of being heavily dependent on coal-fired generation, including the risk of future environmental regulations applicable to coal-fired generation. Explain in full detail whether BREC is aware of any pending environmental regulations that would cause more risk by using coal-fired generation.***

Response) On September 13, 2019, the United States Court of Appeals for the District of Columbia Circuit held that the Cross State Air Pollution Rule (CSAPR) Update unlawfully allows significant contribution to continue beyond downwind attainment deadlines and therefore remanded the rule to the United States Environmental Protection Agency ("EPA") to address the court's holding. EPA is currently considering its options for handling the Court's remand.

On April 16, 2020, EPA completed a reconsideration of the "appropriate and necessary" finding for the Mercury and Air Toxics Standards ("MATS") rule. EPA stated that the reconsideration was intended to correct flaws in the approach to considering costs and benefits while still ensuring that hazardous air pollutant (HAP) emissions from power plants continued to be appropriately controlled. However, this reconsideration only related to the cost–benefit analysis and did not remove coal– and oil–fired power plants from the list of affected source categories for regulation. Various environmental and civil rights organizations have filed suit against EPA alleging that the agency's reconsideration of the cost–benefit process was unlawful. Additionally, several coal industry related organizations have filed suit claiming that the entire MATS rule should be vacated in its entirety as a result of EPA's reconsideration of the "appropriate and necessary" finding. Until such time as the courts resolve the various challenges to the rule, the MATS standards remain in effect and Big Rivers will continue to operate the control equipment as designed. Given the potential operational impacts, Big Rivers is actively monitoring the ongoing MATS litigation matters.

On June 19, 2019, EPA simultaneously repealed the Clean Power Plan rule and issued its replacement, the Affordable Clean Energy ("ACE") rule. The ACE rule establishes emission guidelines for states to use when developing plans to limit carbon dioxide (CO_2) at their coal–fired electric generating units (EGUs). The ACE establishes heat rate improvement (HRI), or efficiency improvement, as the best system of emissions reduction (BSER) of CO_2 from coal–fired units. The rule lists six HRI "candidate technologies," as well as additional operating and maintenance practices designed to reduce emissions. The candidate technologies include:

1. Neural Network/Intelligent Sootblowers,
2. Boiler Feed Pumps,
3. Air Heater and Duct Leakage Control,
4. Variable Frequency Drives,
5. Blade Path Upgrade (Steam Turbine), and
6. Redesign/Replace Economizer.

Kentucky is currently in the process of collecting data regarding the EGUs throughout the Commonwealth and developing a proposed plan by which it will evaluate the impact on emissions that each of the candidate technologies would have at the unit level. Upon completion of this process, Kentucky will submit an implementation plan to EPA that establishes CO_2 emission limitation standards for each affected EGU and will include measures that provide for the implementation and enforcement of such standards. State plans must be submitted to EPA by July 8, 2022. Big Rivers is actively involved with several industry groups to provide input to the Commonwealth on the development of that implementation plan.

Finally, the Unites States is facing a presidential election in November 2020. The expected Democratic nominee, Joseph R. Biden, recently outlined his position for a 100% clean energy economy. Quoting from his website, https://joebiden.com/climate-plan/

> On day one, Biden will sign a series of new executive orders with unprecedented reach that go well beyond the Obama-Biden Administration platform and put us on the right track. And, he will demand that Congress enacts legislation in the first year of his presidency that: 1) establishes an enforcement mechanism that includes milestone targets no later than the end of his first term in 2025, 2) makes a historic investment in clean energy and climate research and innovation, 3) incentivizes the rapid deployment of clean energy innovations across the economy, especially in communities most impacted by climate change.

Witness) Mark J. Eacret

Item 4) ***Refer to the Application, page 6 – 7, in which BREC states that the solar contracts would enhance the Company's credit profile by reducing a risk factor often cited by the credit ratings agencies, and it supports BREC's economic development efforts by allowing the Company to market renewable power to economic development prospects.***

a. Explain in detail what risk factor is often cited by credit ratings agencies with regard to BREC.

b. Provide copies of all requests that BREC has received in the past two years from companies interested in renewable power.

Response)

a. Please see Big Rivers' response to Item 3a of Commission Staff's Initial Request for Information in this case.

b. Please see Big Rivers' response to Item 3b of Commission Staff's Initial Request for Information in this case ("Item 3b"). Requests for economic development candidate pricing are rarely formal. Per Big Rivers' records, in addition to the two candidates that may still be active referenced in Item

3b, Projects Triple Play, Longhorn, Ironton, LIV, and Thor all requested or inquired about a renewable component to their respective power supplies. The Request for Information for Project Storage is provided as a **CONFIDENTIAL** attachment to this response.

Witness) Mark J. Eacret

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Item 5) **Refer *to the Application, page 7, lines 15 - 18. BREC asserts that it is a founding member of the National Renewables Cooperative Organization (NRCO).***

a. Provide an explanation as to the purpose of the NRCO.

b. Explain whether BREC pays dues to NRCO, and if so, provide the monetary amount of the same.

c. If BREC does pay dues to NRCO, state whether it is included in customer rates.

d. Provide a list of all members of NRCO.

Response)

a. According to the NRCO website (www.nrco.coop/about/mission), the mission of the NRCO is "to provide ongoing opportunities for its members to contract and develop cost-effective renewable energy resources. Through experience ranging from small community solar projects to large utility-scale projects, NRCO provides services related to the renewable energy contracting and development process, and assists with the delivery of cost-effective reliable energy to its members."

b. Big Rivers pays annual dues to NRCO. Those annual dues were $33,800 in 2019.

c. Big Rivers' NRCO annual dues are included in its customers' rates.

d. A list of all twenty-two (22) NRCO members can be found by clicking on the 'Select a Member' drop down box at http://nrco.coop/members/.

Witness) Mark J. Eacret

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Item 6) ***Refer to the Application, page 8, in which BREC avers that it received 26 project proposals from 15 fifteen developers, but BREC found that the proposals submitted by Geronimo Energy, LLC (Geronimo) and Community Energy, Inc. (CES) were the lowest cost flat price per kWh and were reasonable in other terms.***

a. Explain in full detail whether there were lower cost proposals submitted by other developers, and if so, why those specific proposals were not accepted.

b. Explain in detail what is meant by "reasonable in other terms."

Response)

a. Please see Big Rivers' response to Item 18 of the Attorney General's First Request for Information.

b. Non-price considerations included the treatment of interconnection costs in the proposal; the treatment of network upgrade costs; the potential for transmission issues; the National Renewables Cooperative Organization's experience with the developer; a location within MISO Zone 6 and, even more preferable, a location in the Big Rivers footprint; and a twenty-year term which would align with the Nucor contract and the remaining term of Big Rivers' Member contract.

Witness) Mark J. Eacret

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Item 7) ***Refer to the Application, page 8, in which BREC states that the solar contracts are subject to Commission approval, approval from RUS, and other conditions precedent. Explain in detail what "other conditions precedent" exist.***

Response) See Sections 2.3, 2.9, and 2.10 of the Meade County Solar and McCracken County Solar/Community Energy Solar ("CES") agreements. See Sections 2.1, 2.3, and 5.2.2 of the Geronimo Henderson Solar contract.

Witness) Mark J. Eacret

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Item 8) ***Refer to the Application, page 8, lines 12 – 13. BREC states that each facility is anticipated to enter commercial operation in 2023. Identify when each facility will begin construction, and how long construction will take to complete.***

Response) The construction process will begin at the time all regulatory approvals and permitting requirements have been obtained and engineering analysis has been completed. Exhibit 2.2 in the Meade County Solar and McCracken County Solar contracts lists the Construction Milestones for the Meade and McCracken sites, respectively. Please see Exhibit Eacret-7 for the **CONFIDENTIAL** project schedule for the Henderson County Solar agreement

Witness) Mark J. Eacret

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Item 9) ***Refer to the Application, page 8, lines 13 – 14. BREC asserts that under the solar contracts, the counterparty will construct, own, and operate the facility. Explain in full detail whether BREC performed any analysis as to the cost to build its own solar energy facility versus entering into three separate solar contracts. Provide copies of all analyses.***

Response) Big Rivers utilized the latest available data from the United States Department of Energy's Energy Information Administration ("EIA") to evaluate the cost to build and own a solar energy facility within Big Rivers' territory. Based on the EIA projections, Exhibit Eacret–12b (the Solar Fixed option) shows the economic analysis if Big Rivers built and operated a 100 MW solar facility beginning in 2024. It shows, for the Base Case, that the Solar Fixed option was not profitable (NPV = [redacted]) and that it was not competitive with the other resource options (ranked 4 out of the 5 options).

Witness) Mark J. Eacret

Item 10) ***Refer to the Application, page 8. Lines 14 – 18. BREC contends that under the solar contracts it will receive the entire capacity value (MW), electrical output (MWh), ancillary services, and environmental attributes of the solar facilities, such as any renewable energy or carbon credits.***

a. State the capacity value of each of the three solar contracts.

b. State the electrical output of each of the three solar contracts.

c. Explain what ancillary services BREC is alluding to in the above-referenced statement.

d. Identify the environmental attributes of the proposed solar facilities beyond renewable energy or carbon credits.

e. Explain in full detail whether carbon credits are currently being used at the state or federal level, or are expected to be used in the future.

Response)

a. The nameplate capacity values of each of the solar contracts is as follows: Geronimo Henderson Solar facility – 160 MW, Community Energy Solar ("CES") Meade Solar facility – 40 MW, and CES McCracken Solar facility – 60 MW.

b. The Geronimo Henderson Solar facility is forecast to produce [redacted] MWh in year one, the CES Meade Solar facility [redacted] MWh in year one, and the CES McCracken Solar facility [redacted] MWh in year one. MWh production at the Henderson Solar site will degrade by approximately .4% and the CES sites will degrade by approximately .5% annually.

c. Please see Big Rivers' response to Item 21b of the Commission Staff's Initial Request for Information in this proceeding.

d. Environmental Attributes is a defined term in all three contracts (see Section 1.1 of each contract) and the definitions are essentially the same. Environmental Attributes means any and all claims, credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, resulting from the avoidance of the emission of any gas, chemical, or other substance to the air, soil or water, which are deemed of value by Buyer. Environmental Attributes include: (a) any avoided emissions of pollutants to the air, soil, or water such as sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO), and other pollutants; (b) all Emissions Reduction Credits; (c) any avoided emissions of carbon dioxide (CO_2), methane (CH_4), and other greenhouse gases (GHGs) that have been determined by any Governmental Authority or the United Nations Intergovernmental Panel on Climate Change to contribute to the actual or potential threat of altering the Earth's climate by trapping heat in the atmosphere; and (d) any cryptocurrency, blockchain, and similar or related matters, items commodities, tokens, or anything of actual, potential, or theoretical value related to, measured by, or associated with anything produced by Facility Output. Environmental Attributes do not include (i) PTCs, ITCs, or other tax incentives existing now or in the future associated with the construction, ownership or operation of the Facility, (ii) matters designated by Buyer as sources of liability, or (iii) any adverse health, safety, wildlife or environmental impacts.

e. According to an article in the New York Times on April 2, 2019,

> With Congress largely gridlocked on climate policy, the main carbon pricing efforts in the United States have unfolded at the state level.
>
> In the Northeast, nine states currently participate in the Regional Greenhouse Gas Initiative, a cap-and-trade system that auctions to power plants a steadily dwindling supply of carbon pollution permits. Carbon prices under this system have been fairly modest to date, and it is unclear how much the prices themselves have driven emissions reductions in the region. But states have used the money raised by the auctions to invest in efficiency and clean energy programs.
>
> California, meanwhile, has enacted its own cap-and-trade program that goes beyond power plants and also covers manufacturers, refineries, and other polluters. Here, too, carbon prices under the system have remained modest to date, in part because the initial cap was set fairly high, and most of California's emissions cuts to date have come as a result of other climate policies. Those include the state's efficiency standards for buildings, and aggressive renewable power targets. State officials are now struggling to tighten the cap so that it drives bigger cuts in future years.
>
> There are some signs that carbon pricing could expand further in the states. Virginia and New Jersey are making moves to join the Regional Greenhouse Gas Initiative, and several Northeastern states are planning a similar program for cars and trucks that would put a price on transportation fuels and invest in mass transit, electric buses or other low-carbon solutions.

This New York Times article goes on to describe international activity regarding carbon taxes and credits. The full article can be found at the following link:

https://www.nytimes.com/interactive/2019/04/02/climate/pricing-carbon-emissions.html

The "Green New Deal", which has been adopted by many Democrat candidates in the upcoming elections, does not include opposition to carbon taxes and/or credits, but would go much further. Please see the following link for further information:

https://insideclimatenews.org/news/04032019/green-new-deal-carbon-tax-compromise-climate-policy-congress-ocasio-cortez-sunrise-ccl-economists

Big Rivers did not include carbon credits in its base economic analysis of the solar contracts. Carbon credits were included in some of the scenario analysis.

Witness) Mark J. Eacret

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Item 11) ***Refer to the Application, page 8. Explain whether BREC or Geronimo have received any objections to the building of the Henderson Solar Facility in Henderson and Webster Counties, Kentucky. If objections have been received, provide copies of all written objections, and summaries of all verbal objections.***

Response) Neither Big Rivers nor Geronimo have received any objections.

Witness) Mark J. Eacret

Item 12) ***Refer to the Application, pages 8 - 9, titled "The Solar Facilities." BREC contends that during construction of the Henderson Solar Facility, the project will provide a $175,000 impact to the community through local spending, will produce $200 million in capital infrastructure improvements, and will create approximately 150 construction jobs, and during the term of the contract, its facility will provide 5 full-time jobs with an annual payroll of approximately $350,000.***

a. What is the estimated construction duration for the Henderson Solar Facility?

b. Whom did Geronimo purchase the land from to be used for the Henderson Solar Facility?

c. Provide a detailed breakdown and description of the $175,000 local spending.

d. Provide a detailed breakdown and description of the $200 million in capital infrastructure improvements.

e. Explain whether all 150 construction jobs will be awarded to local workers, or if labor from outside the area and/or state will be used.

f. ***Provide a detailed explanation of the 5 full-time jobs that will be associated with the Henderson Solar Facility, including the estimated annual salary of each position.***

g. ***Explain in full detail whether the 5 full-time jobs associated with the Henderson Solar Facility will be awarded to people who already live in Henderson and Webster Counties, or if the jobs will be filled by already existing Geronimo employees, people who currently live out of state, etc.***

h. ***Provide the estimated annual property tax that the Henderson Solar Facility will be responsible to pay.***

i. ***Explain whether BREC will be paying for the property taxes associated with Henderson Solar Facility through the contracted rates.***

Response) Based on information provided by Geronimo:

a. Construction is estimated to take up to fifteen (15) months, depending on weather conditions.

b. Geronimo has options to lease and purchase properties within the defined footprints: 951.8 acres are under lease options and 726.94 acres are under purchase options. The purchase options are with the following landowners: West Kentucky Regional Industrial Development, Inc., Dawson Family Trust, Rodger Brown, and Billy Ray LLC.

c. Geronimo utilizes the National Renewable Energy Lab ("NREL") tool called the "Jobs & Economics Development Impact Models" ("JEDI") for estimates of local spending. The model's results for local spending are primarily driven by increased business at local establishments as well as increased demand for goods and services from direct on-site spending. For the purposes of this calculation, the model is run at the state level.

d. The NREL JEDI model was utilized to estimate the capital infrastructure improvements. This estimate includes both the cost of equipment and the cost of labor.

e. The jobs will be posted internally and externally for all positions with the preference to hire qualified individuals in the area when available.

f. The five full-time jobs are comprised of a Site Manager, two level-3 technicians, and two 1-level technicians. Depending on experience level, Site Managers earn between $85,000 and $95,000 annually, and technicians earn between $50,000 and $70,000 annually.

g. The jobs will be posted internally and externally for all positions with the preference to hire qualified individuals in the area when available.

h. Geronimo has coordinated with local counsel at Frost Brown Todd to generate the estimated taxes for the Project. At a minimum, the project is estimated to produce approximately $263,000 in annual property taxes. Geronimo continues to coordinate with local counsel and local and state agencies to improve the accuracy of the property tax estimate.

i. The contracted rates, which were the product of negotiations between Big Rivers and the project, are estimated to allow the Solar facility to recover all of the costs associated with developing, building and operating the facility, including any required taxes. The rates do not contain any adjustment or true-up to actual taxes charged, and the Solar Facility assumes the risk of any change in cost components of the project, including changes in property taxes.

Witness) Mark J. Eacret

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Item 13) ***Refer to the Application, pages 8 - 9, titled "The Solar Facilities." BREC asserts that the Meade Solar facility will generate 150 jobs during construction, with the entry-level positions being accessible to a wide range of local workers. Once operational, each solar farm will pay significant annual property taxes, dramatically increasing the current taxes on the property.***

a. What is the estimated construction duration for the Meade Solar Facility?

b. Whom did CES purchase the land from to be used for the Meade Solar Facility?

c. Explain whether there will be local spending, as asserted for the Henderson Solar Facility. If so, provide an estimated amount of local spending, along with a breakdown of the same. If not, explain why not.

d. Advise whether there will be capital infrastructure improvements associated with the Meade Solar Facility, and if so provide the monetary amount of the same. If not, explain why not.

e. ***Explain why only entry-level positions will be accessible to local workers during the building of the Meade Solar Facility.***

f. ***Will the higher paid positions during the construction of the Meade Solar Facility be awarded to labor from outside the area and/or state?***

g. ***Explain in detail whether any full-time jobs will be associated with the Meade Solar Facility. If so, provide a detailed explanation of the full-time jobs, including the estimated annual salary of each position. If not, explain why not.***

h. ***If full-time jobs are associated with the Meade Solar Facility, explain in full detail whether the jobs will be awarded to people who already live in Meade County, or if the jobs will be filled by already existing CES employees, people who currently live out of state, etc.***

i. ***Provide the estimated annual property tax that the Meade Solar Facility will be responsible to pay.***

j. Explain whether BREC will be paying for the property taxes associated with the Meade Solar Facility through the contracted rates. If needed, start here.

Response) According to information provided by CES:

a. The estimated construction duration for the Meade County Solar Facility is 6-9 months.

b. The land to be used for the Meade County Solar Facility will be leased from private landowners.

c. It is anticipated that there will be significant local spending in connection with the construction of the Meade County Solar Facility, in excess of $1,500,000. This local spending will be for electrical contractors' work, civil engineer work, site security, fencing and landscaping, and includes spending by construction workers for gas, food, lodging and miscellaneous supplies.

d. Outside of potential upgrades to the Big Rivers-owned transmission system which may be required to accommodate new generation from the Meade

County Solar Facility (details and cost estimates unknown at this time), there will not be any significant improvements to any public infrastructure associated with the Meade County Solar Facility.

e. Local workers will have access to any available jobs created during the construction of the Meade County Solar Facility. The majority of the jobs created will not require previous solar-related experience or specific solar-related skills. Accordingly, they can be filled by any local able-bodied person. While most skilled or management positions will be filled by the staff of the Engineering, Procurement, and Construction ("EPC") contractor selected for the project, or by local sub-contractors, any openings for senior positions will be accessible to any local person with the requisite skills and experience.

f. The EPC contractor for the Meade County Solar Facility will likely be an experienced regional or national solar EPC. These EPCs generally staff their construction management and foreperson positions internally. Those higher paid positions may be in-state or out-of-state residents.

g. The Meade County Solar Facility will require 2-3 full time employees. Job responsibilities will include any and all services required to keep the system in good general working order and adhere to all applicable operating requirements. Such services will include, but not be limited to, preventative maintenance, active monitoring, corrective maintenance, vegetation abatement and warranty services. The primary system manager will be salaried at $60,000-$80,000 per year, depending on the individual's full scope of responsibilities, credentials, and experience. The additional support positions will be hourly workers compensated in a range of $15-$25 per hour.

h. The full-time jobs created by the Meade County Solar Facility will likely be awarded to people who already live in Meade County or nearby counties, or to people who will relocate to the area. They will not be staffed by CES employees.

i. The Year 1 property tax paid by the Meade County Solar Facility is estimated to be $204,000.

j. The property taxes for the Meade County Solar Facility will be paid directly to Meade County by the owner-operator of the facility. Big Rivers will not be paying the property taxes through the contracted rates.

Witness) Mark J. Eacret

Item 14) ***Refer to the Application, pages 8 - 9, titled "The Solar Facilities." BREC asserts that the McCracken Solar facility will generate 150 jobs during construction, with the entry-level positions being accessible to a wide range of local workers. Once operational, each solar farm will pay significant annual property taxes, dramatically increasing the current taxes on the property.***

a. What is the estimated construction duration for the McCracken Solar Facility?

b. Whom did CES purchase the land from to be used for the McCracken Solar Facility?

c. Explain whether there will be local spending, as asserted for the Henderson Solar Facility. If so, provide an estimated amount of local spending, along with a breakdown of the same. If not, explain why not.

d. Advise whether there will be capital infrastructure improvements associated with the McCracken Solar Facility, and if so provide the monetary amount of the same. If not, explain why not.

e. ***Explain whether construction jobs will be open to local workers during the building of the McCracken Solar Facility.***

f. ***Will the higher paid positions during the construction of the McCracken Solar Facility be awarded to labor from outside the area and/or state?***

g. ***Explain in detail whether any full-time jobs will be associated with the McCracken Solar Facility. If so, provide a detailed explanation of the full-time jobs, including the estimated annual salary of each position. If not, explain why not.***

h. ***If full-time jobs are associated with the McCracken Solar Facility, explain in full detail whether the jobs will be awarded to people who already live in McCracken County, or if the jobs will be filled by already existing CES employees, people who currently live out of state, etc.***

i. ***Provide the estimated annual property tax that the McCracken Solar Facility will be responsible to pay.***

j. Explain whether BREC will be paying for the property taxes associated with the McCracken Solar Facility through the contracted rates. If needed, start here.

Response) According to information provided by CES:

a. The estimated construction duration for the McCracken County Solar Facility is 6-9 months.

b. The land to be used for the McCracken County Solar Facility will be leased from private landowners.

c. It is anticipated that there will be significant local spending in connection with the construction of the McCracken County Solar Facility, in excess of $2,300,000. This local spending will be for electrical contractors' work, civil engineer work, site security, fencing and landscaping, and includes spending by construction workers for gas, food, lodging and miscellaneous supplies.

d. Outside of potential upgrades to the Big Rivers-owned transmission system which may be required to accommodate new generation from the

McCracken County Solar Facility (details and cost estimates unknown at this time), there will not be any significant improvements to any public infrastructure associated with the McCracken County Solar Facility.

e. Local workers will have access to any available jobs created during the construction of the McCracken County Solar Facility. The majority of the jobs created will not require previous solar-related experience or specific solar-related skills. Accordingly, they can be filled by any local able-bodied person. While most skilled or management positions will be filled by the staff of the Engineering, Procurement, and Construction ("EPC") contractor selected for the project, or by local sub-contractors, any openings for senior positions will be accessible to any local person with the requisite skills and experience.

f. The EPC contractor for the McCracken County Solar Facility will likely be an experienced regional or national solar EPC. These EPCs generally staff their construction management and foreperson positions internally. Those higher paid positions may be in-state or out-of-state residents.

g. Local workers will have access to any available jobs created during the construction of the McCracken County Solar Facility. The majority of the jobs created will not require previous solar-related experience or specific solar-related skills. Accordingly, they can be filled by any local able-bodied person. Any openings for senior positions will be accessible to any local person with the requisite skills and experience.

h. The full-time jobs created by the McCracken County Solar Facility will likely be awarded to people who already live in McCracken County or nearby counties, or to people who will relocate to the area. They will not be staffed by CES employees.

i. The Year 1 property tax paid by the McCracken County Solar Facility is estimated to be $305,000.

j. The property taxes for the McCracken County Solar Facility will be paid directly to McCracken County by the owner-operator of the facility. Big Rivers will not be paying the property taxes through the contracted rates.

Witness) Mark J. Eacret

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Item 15) ***Reference the Application, page 12, numerical paragraph 22, wherein BREC states, "The Solar Contracts will not result in excess capacity or an unreasonable investment." Provide the net gain (or loss) of load BREC has experienced in the large industrial class over the past year in terms of MWh, and identify the load by customer name. For each such customer identified as experiencing a loss of load, provide the expected duration of such loss.***

Response) Big Rivers industrial sales fell by a little less than 1% from 2018 to 2019. Please refer to page 12 of the Big Rivers Electric Corporation's 2019 Annual Report provided as an attachment to Big Rivers' response to Item 31 of the Attorney General's First Request for Information. On that page, please see the line item 'Member Large Industrial' within the section entitled 'ENERGY SALES (MWH)' for a five-year summary of industrial sales.

Big Rivers' Direct Serve class includes consumers that are directly served from its transmission system. Big Rivers has not developed expectations for the Large Commercial and Industrial loads on its Member-Owners' distribution systems. A table listing Big Rivers' Direct-Serve Large Industrial Accounts appears on the following page.[1] The expected duration of the indicated loss or gain is unknown except for a few Direct Serve customers indicated with an asterisk "*" in the table and whose accounts have moved to Big Rivers' Member-Owners' distribution systems or have indicated their businesses have closed. In both of these cases the load is not expected to return to previous levels but the residual load will remain on Big Rivers' system. Despite Hartshorne Mining's increase over the past year, Big Rivers received notice in July, 2020, of its anticipated closure.

[1] Prefixes for the Customer Names in the table are as follows: JPI = Jackson Purchase Energy Corporation Industrial; KI = Kenergy Corp. Industrial.

Big Rivers Electric Corporation Direct - Serve Large Industrial Accounts 2019 (Loss) or Gain in MWhs		
	Customer Name	**MWhs**
*	[redacted]	
*		
*		
*		
	Total Direct-Serve MWH (loss) in 2019	(7,739)

Witness) Mark J. Eacret

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Item 16) ***Refer to the Application generally. Explain whether all the ratepayers will be forced to pay for the energy provided by the solar contracts, or if the cost will be borne only by those ratepayers who opt to pay for solar energy.***

Response) [redacted], all Members will receive the benefit of the solar contracts. Big Rivers' current plan is to sell the Renewable Energy Certificates ("RECs") and pass the proceeds through to its Members. If a Member wanted solar energy, that Member would be required to purchase the RECs at market prices and the other Members will still receive that benefit.

As noted on page 38 of my testimony, the solar contracts are expected to bring a net present value benefit to Big Rivers' our Members of between [redacted]

[redacted]. Those benefits will be realized through the Fuel Adjustment Clause or the margin sharing mechanism recently approved in Case No. 2020-00064.[1]

Witness) Mark J. Eacret

[1] See *In the Matter of: Electronic Application of Big Rivers Electric Corporation for Approval to Modify its MRSM Tariff, Cease Deferring Depreciation Expenses, Establish Regulatory Assets, Amortize Regulatory Assets, and Other Appropriate Relief* – Case No. 2020-00064. Application filed February 28, 2020.

Item 17) ***Refer to the Application generally. Explain in full detail how the proposed solar contracts comply with the Commission precedent of implementing a least-cost analysis when reviewing proposed construction or power purchase contracts.***

Response) Big Rivers does not believe the Commission's approval of the solar contracts is required pursuant to the Commission's Order dated May 8, 2020, in Case No. 2020-00016.[1] However, the solar contracts provide the lease-cost option for service Big Rivers' load as shown in Exhibit Eacret–12 and the LT Plan Results Summary provided as **CONFIDENTIAL** Exhibit Eacret–12A to my direct testimony.[2] Please see page 1 of 3 of **CONFIDENTIAL** Exhibit Eacret–12 and the response to the first question on that page, "How did Big Rivers evaluate the solar PPAs?" The Long–Term ("LT") Plan models run for the base case and all sensitivities are solving for the least-cost option and provide the least-cost analysis. The model results show the maximum allowed solar PPA amount is added in all the sensitivities

[1] See Big Rivers' Application in this matter at pages 10-11.

[2] See also Big Rivers' Application in this matter at pages 12-13.

except when power prices (LMP Prices) are higher and natural gas delivered prices are lower

Witness) Mark J. Eacret

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Item 18) ***Refer to the Direct Testimony of Mark Eacret (Eacret Testimony), page 10.***

a. Explain what the BREC.BREC load node entails.

b. BREC asserts that most of the projects removed from consideration were at the high end of the price range. Explain in full detail whether BREC removed any project at the low end of the price range. If the answer is yes, then provide a detailed list of the lower priced projects that were removed, and a detailed explanation as to why they were removed.

Response)

a. BREC.BREC is the MISO code for Big Rivers load. The BREC.BREC Locational Marginal Price ("LMP") is the price that Big Rivers pays MISO for energy.

b. Proposals with a price less than the [redacted] Geronimo contract price:

[redacted]

[1] MTEP = MISO Transmission Expansion Plan.

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[redacted]

[redacted]

Witness) Mark J. Eacret

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Item 19) ***Refer to the Eacret Testimony, page 11, wherein he states that BREC initially proposed to purchase 100 MW from Geronimo, but when the Company found out that Geronimo intended to build a 160 MW solar facility, and offer the output for sale to others, BREC had multiple concerns with an unknown counterparty in connection to the same solar facility. Mr. Eacret further asserts that BREC then negotiated a lower price and exclusivity in exchange for increasing the size of the purchase.***

a. Explain in detail the "multiple concerns" that BREC had with an unknown party purchasing energy from the same solar facility.

b. If BREC only intended to purchase 100 MW, then explain in detail how the additional 60 MW power purchase from this solar facility is not excessive.

Response)

a. Please see Big Rivers' response to Item 10 of Commission Staff's Initial Request for Information in this case.

b. When issuing its solar Request for Proposals (RFP), Big Rivers only intended to meet the [redacted]. However, the pricing on the proposals received presented a limited-time significant opportunity for Big Rivers' Members to purchase [redacted], to reduce both costs and the market exposure of long-term [redacted] obligations with the Owensboro Municipal Utilities and Nucor agreements, and to further diversify Big Rivers' power supply portfolio.

The solar developers' ability to offer attractive prices is a result of the availability of the Federal Investment Tax Credit ("ITC") incentive to those developers. In order for the solar developers to fully benefit from the current ITC, the construction of the solar facilities must begin prior to December 2020 and utility scale projects must be completed by December 31, 2023.

As I fully explained on pages 12 through 15 of my direct testimony (Application Exhibit 4), from a capacity perspective, the proposed solar contracts would add only about 150 zonal resource credits ("ZRCs") in 2029 under the current MISO Business Practice Manual ("BPM") and only 68 MW under MISO's proposed Effective Load Carrying Capability ("ELCC") approach. Absent the solar contracts, Big Rivers will not have the capacity necessary to meet the requirements of its native load and the OMU and KyMEA contracts from [redacted]. The resource models clearly confirm that the solar contracts provide the least-cost option available to Big Rivers to add capacity.

Witness) Mark J. Eacret

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Item 20) ***Reference the Eacret Testimony, page 12, lines 17 - 19. Provide all cost-benefit analyses BREC performed with regard to each solar contract.***

Response) See the *Revised* Exhibit Eacret–15 to my testimony, which presents a net benefit of the contracts of [redacted]. For additional analyses, please see Big Rivers' response to Item 9 of the Attorney General's First Request for Information.

Witness) Mark J. Eacret

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Item 21) ***Refer to the Eacret Testimony, pages 16 – 17. Explain in detail the risks associated with solar generation.***

Response) The reference on pages 16-17 of my testimony was to risks that could increase the cost of energy to Big Rivers' Members. As further discussed in my testimony, Regional Transmission Organizations such as MISO have concerns regarding the impact that the current influx of intermittent renewable resources will have on the transmission grid. Therefore, a regulatory risk exists that changing MISO tariff provisions could reduce the value of such generation in the future. For example, there is a proposed change from the current MISO Business Practices Manual approach of assigning capacity value to solar generation to the Effective Load Carrying Capability approach. This change is discussed on pages 32 through 34 of my testimony. Additionally, energy, capacity, and Renewable Energy Certificates ("RECs") are essentially commodities, subject to the same price risk as any other commodity. The value of the environmental attributes of solar generation, such as RECs or carbon credits, are subject to the changing political climate.

The proposed solar contracts contain guaranteed minimums at 90% of expected generation over two years, which provides substantial protection against the inherent climate and weather risk.

Other risks, such as construction risk, financial risk, counterparty risk, market risk, operational risk, technology risk, other political and regulatory risk, *etc.*, are not unique to solar generation. Because Big Rivers will not own or operate the facilities, its exposure is significantly limited in regards to these risks. Additionally the proposed solar contracts contain credit protections minimizing any counterparty risk.

Witness) Mark J. Eacret

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Item 22) ***Refer to the Eacret Testimony, page 17. Mr Eacret states that Geronimo has a vast pipeline of wind and solar projects in various stages of development throughout the United States. Provide a detailed list of all wind and solar projects that Geronimo has developed, or is in the process of developing, which state it is located in, the amount of power that is produced, and how long it has been operational.***

Response) Based on information provided by Geronimo: Geronimo has developed over 2,400 megawatts of wind and solar projects that are either operational or currently under construction throughout the United States. To view a list of projects that are currently operational, please visit: https://geronimoenergy.com/our-projects/. To view a list of projects that are currently under development, please visit: https://geronimoenergy.com/our-projects/project-map/.

Witness) Mark J. Eacret

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Item 23) ***Refer to the Eacret Testimony, page 18. Mr. Eacret asserts that under the terms of the Henderson Solar Contract, BREC will be responsible for 50% of network upgrade costs, which are expected to be less than one million dollars total.***

a. Provide a detailed explanation as to what the network upgrade costs entail.

b. Explain in detail whether the expected cost of less than one million dollars is a onetime cost, annual cost, etc.

Response)

a. Network Upgrade Cost is defined in the Geronimo/Henderson Solar contract as "defined in the Tariff and also includes costs and expenses payable to an affected System Operator and defined in and required under the Generation Interconnection Agreement." Per the MISO Tariff definition, Network Upgrades include all or a portion of the modifications or additions to transmission–related facilities that are integrated with and support the Transmission Provider's overall Transmission System for the general benefit of all users of such Transmission System.

b. The network upgrade cost will be a one–time cost.

Witness) Mark J. Eacret

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Item 24) ***Refer to the Eacret Testimony, page 20, and provide the estimated amount of power that the Henderson Solar Facility will utilize as a Kenergy customer.***

Response) Geronimo has estimated its demand on the Kenergy system for the Henderson Solar Facility at 35 kW.

Witness) Mark J. Eacret

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Item 25) ***Refer to the Eacret Testimony, pages 20 and 25, and explain what is meant by "shadow-settle."***

Response) Please see Big Rivers' response to Item 23 of Commission Staff's Initial Request for Information in this case.

Witness) Mark J. Eacret

Item 26) ***Refer to the Eacret Testimony, page 21. If needed, start here.***

a. Provide the name of the local education fund that will receive a $32,000 annual contribution from Geronimo.

b. Confirm that Geronimo's shareholders will be making the $32,000 annual contribution.

c. Provide the expected duration of the $32,000 annual contribution from Geronimo to a local education fund, and explain whether this is a requirement in the solar contract.

Response) According to information provided by Geronimo:

a. Geronimo continues to coordinate with local stakeholders to best define the use of the Charitable Fund/Education Fund to best suit the communities need.

b. Geronimo Energy is the contributor of the $32,000 annual contribution.

c. The expected duration of the $32,000 annual contribution is 20 years. This contribution is not a requirement in the solar contract, but is a commitment made by Geronimo at all of its projects to give back to the communities in which they operate. Geronimo currently has active Community or Education funds at all of its operating projects, and funds them through either an annual contribution or the purchase of an annuity to ensure the funding for the full 20 years, regardless of who owns the project.

Witness) Mark J. Eacret

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Item 27) ***Refer to the Eacret Testimony, page 22, lines 10 – 19. Mr. Eacret states that CES has developed and financed 2,000 MW of renewable energy projects across the country. Provide a detailed list of all renewable energy projects that CES has developed, or is in the process of developing, which state it is located in, the amount of power that is produced, and how long it has been operational.***

Response) Please see the attachment to this response, a project listing provided by CES.

Witness) Mark J. Eacret

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Community Energy Solar (CES) Projects

Wind Projects Developed by CES – Operational	State	MW (AC)	COD
Crescent Ridge 1	IL	54	2004
Bear Creek	PA	24	2005
Jersey Atlantic	NJ	7.5	2005
Locust Ridge 1	PA	26	2006
Crescent Ridge 2	IL	72	2007
Top of Iowa 2	IA	80	2007
Locust Ridge 2	PA	102	2008
Lempster	NH	24	2008
Winnebago	IA	20	2008
Barton 1 & 2	IA	160	2008
Farmers City	MO	144	2008
Total MW (AC) Operational Wind Projects		714	

Solar Projects Developed by CES – Operational	State	MW (AC)	COD
Eastern University	PA	0.056	2010
Smith College	MA	0.027	2010
Vineland	NJ	7	2011
Keystone	PA	5	2012
Rose Hill	NC	2	2012
Dunn	NC	2	2012
Berkley East	MA	3	2012
Sterling	MA	2	2013
CES Temple	PA	0.063	2013
Franklin	NC	2	2013
Lake County	IN	4	2013
Warsaw	NC	2	2013
Kenansville	NC	2	2013
Wallace	NC	2	2013
Colorado Solar Gardens	CO	1.5	2013/2014
Beulaville	NC	2	2014
Warsaw 2	NC	2	2014

Notes:
1. **AC = Alternating Current**
2. **COD = Commercial Operation Date**

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Solar Projects Developed by CES – Operational (*continued*)	State	MW (AC)	COD
Arba	NC	2	2014
Clarkson	NY	2	2014
NJ (West Pemberton, Jacobstown, Harmony, Hanover, North Run)	NJ	28	2014
Castalia	NC	2	2014
Snow Hill 2	NC	2	2014
East Wayne	NC	2	2014
Franklin 2	NC	2	2014
Kinston	NC	2	2014
Jakana	NC	5	2014
Williamston	NC	5	2014
Windsor	NC	5	2014
Lewiston	NC	5	2014
Bethel	NC	4	2015
Marion County	IN	5	2015
Faison	NC	2	2015
Kenansville 2	NC	2	2016
Comanche	CO	120	2016
Elizabethtown	PA	2	2016
Butler	GA	103	2016
Cedar Branch and Upper Freehold	NJ	9	2016
Amazon Solar Farm US East (Eastern Shore)	VA	80	2016
North Star	MN	100	2016
Garysburg	NC	5	2016
Gaston	NC	5	2016
Seaboard	NC	5	2016
Tarboro	NC	5	2016
Winton	NC	5	2016
Woodland	NC	5	2016
South Louisburg	NC	5	2016
Franklinton	NC	5	2016

Notes:
1. **AC = Alternating Current**
2. **COD = Commercial Operation Date**

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Solar Projects Developed by CES – Operational (*continued*)	State	MW (AC)	COD
Pollocksville	NC	5	2016
Lillington	NC	5	2016
Mt Olive	NC	2	2017
Rutland	MA	1	2017
Southampton	VA	100	2017
San Luis	CO	1.2	2017
Zumbro	MN	1	2018
Lake Waconia	MN	1	2018
Lake Waconia IV	MN	1	2018
Veseli	MN	1	2018
New Germany	MN	1	2018
Clara City	MN	1	2018
New Munich	MN	1	2018
Olinda Trail	MN	1	2018
Stearns	MN	1	2018
Wabasha	MN	1	2018
Wabasha II	MN	1	2018
Wabasha IV	MN	1	2018
Winona I	MN	1	2018
Winona II	MN	1	2018
Gateway	MD	4.55	2018
Barre	MA	2	2018
Lafayette Horizon	CO	1.56	2018
Rockdale	MD	2	2019
Pinesburg	MD	4	2019
Alden	CO	1.4	2020
Platteville	CO	1.2	2020
Total MW (AC) Operational Solar Projects		713	

Notes:
1. **AC = Alternating Current**
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Community Energy Solar (CES) Projects

Solar Projects Developed by CES - Construction Phase	State	MW (AC)	Projected COD
Midlands	SC	72	2020
Sigurd	UT	80	2020
Monte Vista 2	CO	1.4	2020
Hunter	UT	100	2020
Rock Creek 2	CO	1.4	2020
Alamosa South	CO	1.4	2020
Hayfield I	MN	1	2020
Hayfield III	MN	1	2020
Pipestone City	MN	1	2020
Glenmere Lake	NY	2	2021
South Goshen	NY	5	2021
Minisink	NY	1	2021
Slate Hill	NY	2	2021
Lockenhurst Pond	NY	2	2021
Washingtonville	NY	2	2021
Adams	PA	80	2021
Eastover	SC	73	2021
New Castle	DE	50	2022
Salt City	OH	80	2022
Adams County	OH	80	2022
Mohawk	NY	90	2022
Calhoun County	FL	350	2023
Total MW (AC) Construction Phase Solar Projects		1,076	

Notes:
1. **AC = Alternating Current**
2. **COD = Commercial Operation Date**

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Community Energy Solar (CES) Projects

Selected Solar Projects In Development by CES	State	MW (AC)	Projected COD
Great Cove	PA	220	2022
Halifax County	NC	80	2022
McCracken County	KY	60	2023
Meade County	KY	40	2023
Henderson County	KY	50	2023
Elkwood	VA	60	2023
Russellville	KY	173	2023
Total MW (AC) Selected Solar Projects In Development		683	

Notes:

1. **AC = Alternating Current**
2. **COD = Commercial Operation Date**

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Item 28) ***Refer to the Eacret Testimony, page 23, lines 15 - 16. Mr. Eacret states that under the terms of the Meade and McCracken Solar Contract, BREC will be responsible for any interconnection costs above $300,000, and that CES will be required to provide appropriate credit support.***

a. Provide a detailed explanation as to whether BREC envisions there will be interconnection costs above $300,000.

b. Confirm that if an interconnection cost is below $300,000, then the cost will be borne by CES.

c. Explain in detail what is meant by the statement that CES will be required to provide appropriate credit support.

Response)

a. While a detailed facilities study has not been completed, the estimated cost for each 69 kV connection is $300,000.

b. Yes, CES bears all interconnection costs below $300,000 for each facility.

c. Section 8.1 of the CES contracts details their credit support requirements.

Witness) Mark J. Eacret

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Item 29) ***Refer to the Eacret Testimony, page 24.***

a. Provide the estimated amount of power that the Meade Solar Facility will utilize as a Meade County RECC customer.

b. Provide the estimated amount of power that the McCracken Solar Facility will utilize as a Jackson Purchase Energy customer.

Response)

a. Community Energy Solar estimates that it will require about 278 MWh annually as a Meade County RECC customer for the Meade County Solar facility.

b. Community Energy Solar estimates that it will require about 276 MWh annually as a Jackson Purchase Energy customer for the McCracken County Solar facility.

Witness) Mark J. Eacret

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Item 30) ***Refer to the Direct Testimony of Paul G. Smith (Smith Testimony), page 8, wherein Mr. Smith asserts that in the most recent credit report published, there was a reference to negative credit implications due to BREC's reliance upon coal. Mr. Smith further states that diversifying the portfolio with solar will be viewed positively by the credit agencies.***

a. Provide copies of all credit reports containing a negative credit implication due to BREC's reliance upon coal.

b. Provide all documentation supporting the statement that diversifying BREC's portfolio with solar power will be viewed positively by credit agencies.

Response)

a. Please see Big Rivers' response to Item 33b of Commission Staff's Initial Request for Information in this case.

b. Please see Big Rivers' responses to Item 3a and Item 33b of Commission Staff's Initial Request for Information in this case.

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Witness) Paul G. Smith

BIG RIVERS ELECTRIC CORPORATION

ELECTRONIC APPLICATION OF
BIG RIVERS ELECTRIC CORPORATION
FOR APPROVAL OF SOLAR POWER CONTRACTS
CASE NO. 2020-00183

Response to the Office of the Attorney General's
First Request for Information
dated August 6, 2020

August 14, 2020

Item 31) ***Refer to the Application generally. Provide the net gain (or loss) of load BREC has experienced in the Rural Class over the past year in terms of MWh.***

Response) Please see page 12 of the Big Rivers Electric Corporation's 2019 Annual Report provided with this response. On that page, please see the line item 'MEMBER RURAL' within the section entitled 'ENERGY SALES (MWH)' for a five-year summary of Rural Class MWhs.

Witness) Mark J. Eacret

Big Rivers
ELECTRIC CORPORATION

Powering Possibilities

2019 ANNUAL REPORT

ZACH ADAMS KENNY ADKISSON DAWNA ALEXANDER TONY ALEXANDER JASON ARNOLD JOHN ATKISON LUKE AULL DAVID AUSTIN KYLE AUTRY SCOTT AYER SEAN BACHMAN CODY BADERTSCHER JAKE BAKER SAM BAKER LEONARD BARNETT JACOB BARRON SHANE BATES ROBIN BECK REGY BEISWENGER DARRELL BENNETT JENNIFER BENNETT JENNIFER BENSON BRANDON BERRY DEVIN BERRY NATHAN BERRY BOB BERRY MARK BERTRAM DOMINIC BIRK THOMAS BISHOP TIM BLANDFORD DAVID BLANK RON BLANKS BILLY BOARMAN JULIA BOOK JACOB BOWLEY PERRY BOWLEY BARRY BOWMAN CHRIS BRADLEY DAVID BRASHEAR DUANE BRAUNECKER LEWIS BREEDEN JEFF BROWN TIM BROWN ALLEN BRYANT JIM BUCKMAN GARY BUNCH JASON BURDEN KENT BURDEN JARED BURDEN DARRELL BURNS PHILLIP BUTLER DOUG BUTTRUM ROB CALDWELL GLEN CALHOUN ROB CALHOUN AARON CALVERT JEROME CARPENTER PAUL CARTER NICK CASTLEN KERRI CATES ERIC CECIL SHAUN CECIL MIKE CHAMBLISS KATIE CHEATHAM PRASAD CHORAGUDI BILLY CHRISTIAN DEREK COKER TRACY COLE RACHEL COLLINS KENT CONN KEN COOK NICK COOK ANDY COTTON JUSTIN CROWDER JASON CURNEAL TERRIE CURRAO KYLE CURTIS MIKE DAUGHERTY RICK DAUGHERTY RICHARD DEMAR WALTER DENTON GREG DICK KENNY DRAKE CINDY DUCKWORTH BRAD DUNCAN STEVEN DUNCAN STEVE DUNCAN CHARLIE DUNN LINDSAY DURBIN ROGER DUVALL REX DYE MARK EACRET JOSEPH EDGE BRIAN EDWARDS SEAN EMBERTON MATT EMBRY JACKIE FAHSE PATTI FALLIN RICHARD FARLEY DAKOTA FARTHING DARREL FELTY NATHAN FLENER MARK FLOYD KEVIN FORKER MARK FOSTER JEFF FRANCIS DANA FREDERICK JEFF FREE MIKE FRIZZELL JEFF FULKERSON JNEY FULKS TODD GAITHER MIKE GALBRAITH MITCH GALYEN JONATHON GARDNER LISA GARRETT BRYAN GARST JEREMY GATTEN JOE GATTON CASEY GEER MITCHELL GENTRY RANDY GENTRY CHRISTA GIBSON JIM GLASSCO JASON GOODMAN JERRY GORRELL FRED GRAY TIM GRAY MICHELLE GREEN ROBERT GREEN CARY GREENWELL JIM GREGORY RONALD GREGORY CHAD GRIFFIN JON HALL STEVE HALLMANN NATALIE HANKINS BILL HARDESTY BOB HARDISON ASHLEY HARLEY BRANDON HARTMIRE TONJA HAY TONY HAYES BRUCE HENSLEY JOE HERNANDEZ MARK HERRING ROGER HICKMAN GREG HIGHT DWAYNE HILL PHILLIP HILL MARTY HITE MIKE HOBGOOD RON HOCKEY ODIE HODGES JOE HOLLAND GEORGE HOLLANDER JOHN HOLLANDER TRINA HOLLANDER MARY HOLMES KERRY HOOVER MARK HOOVER GREG HOPE IAN HOPKINS TODD HOSKINS DANIEL HOWARD DAVID HOWARD SCOTT HOWARD TOMMY HOWARD RYAN HUDSON BLAKE HUNT WARREN HUST CODY HUTCHEISON RANDY HUTCHISON KEVIN INSKO AMANDA JACKSON TIM JACKSON AUSTIN JAMES KEITH JOHNS MONTY JOHNSON CHRIS JOHNSON DENEEN JOHNSON KENNY JOHNSON KEVIN JOHNSON MARK JOHNSON NICK JOHNSON BILLY JONES GREG JONES MARK JONES RALPH JONES TRENT JONES BILL JONES TYSON KAMUF JENNIFER KEACH JOHN KENNEDY DAMIEN KNOWLES STEVE KURZ JOSH LADNIER GLENN LAIRD

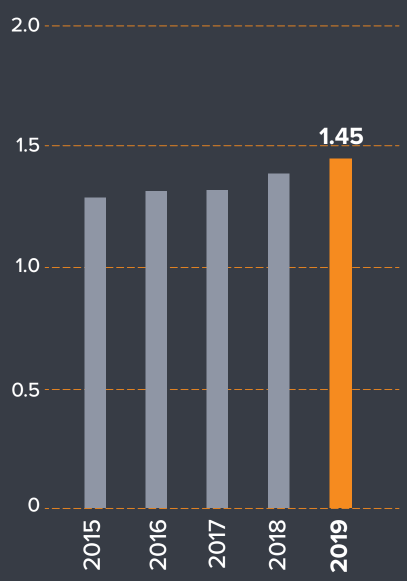
POWERING POSSIBILITIES

When you present good possibilities to good people, they can do great things.

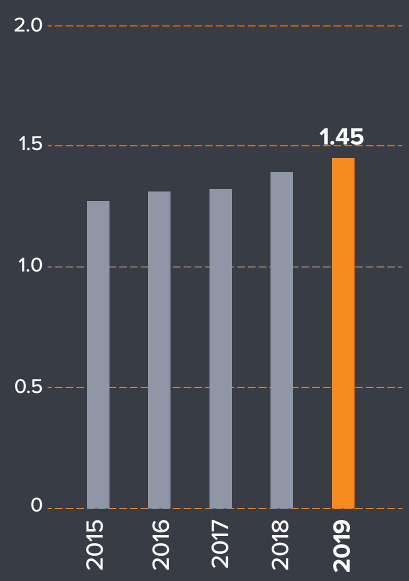
2019 FINANCIAL HIGHLIGHTS

As of December 31, 2019 and the four preceding Fiscal Years

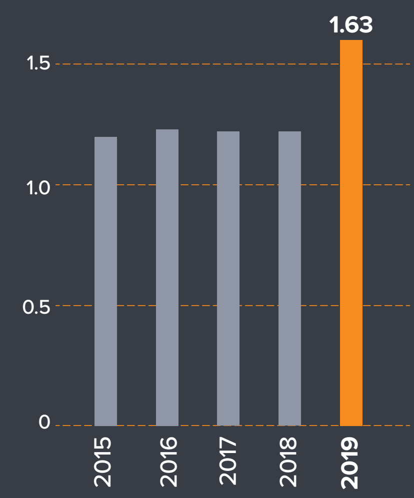
MARGINS FOR INTEREST RATIO (MFIR)



TIMES INTEREST EARNED RATIO (TIER)



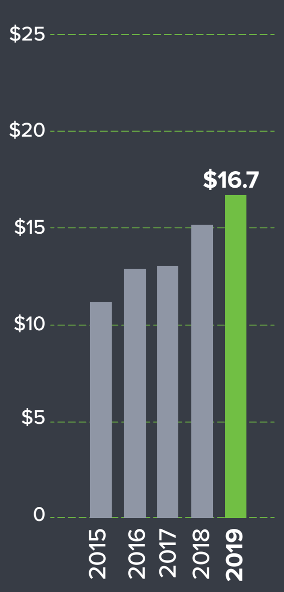
DEBT SERVICE COVERAGE RATIO (DSCR)



2019 FINANCIAL OVERVIEW

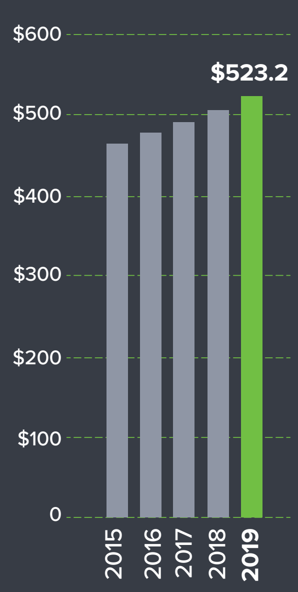
NET MARGIN

Dollars in Millions



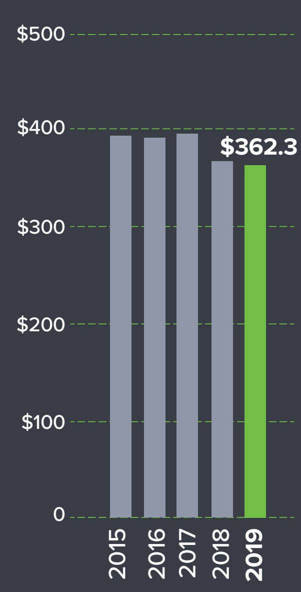
EQUITY

Dollars in Millions



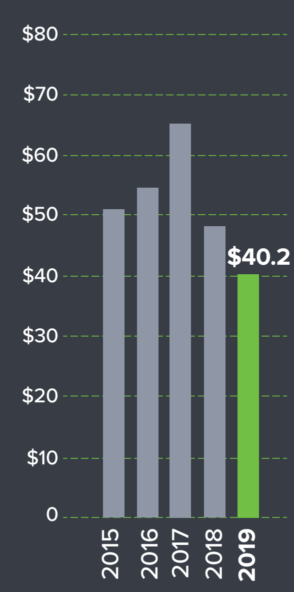
ELECTRIC ENERGY REVENUES

Dollars in Millions



CASH, CASH EQUIVALENTS, & SHORT-TERM INVESTMENTS

Dollars in Millions



MISSION: Big Rivers will safely deliver competitive and reliable wholesale power and cost-effective shared services desired by our Member-Owners.

VISION: Big Rivers will be viewed as one of the top G&Ts in the country and will provide services the Members desire in meeting future challenges.

VALUES:

- Safety
- Excellence
- Integrity
- Teamwork
- Member-Owners and Community Service
- Respect for the Employee
- Environmentally Conscious

Big Rivers Electric Corporation is a member-owned, not-for-profit, generation and transmission cooperative (G&T).

We provide wholesale electric power and shared services to three distribution cooperative Member-Owners across 22 counties in western Kentucky. The Member-Owners are Jackson Purchase Energy Corporation, headquartered in Paducah; Kenergy Corp, headquartered in Henderson; and Meade County Rural Electric Cooperative Corporation, headquartered in Brandenburg. Together, the Member-Owners distribute retail electric power to more than 118,000 homes, farms, and businesses.

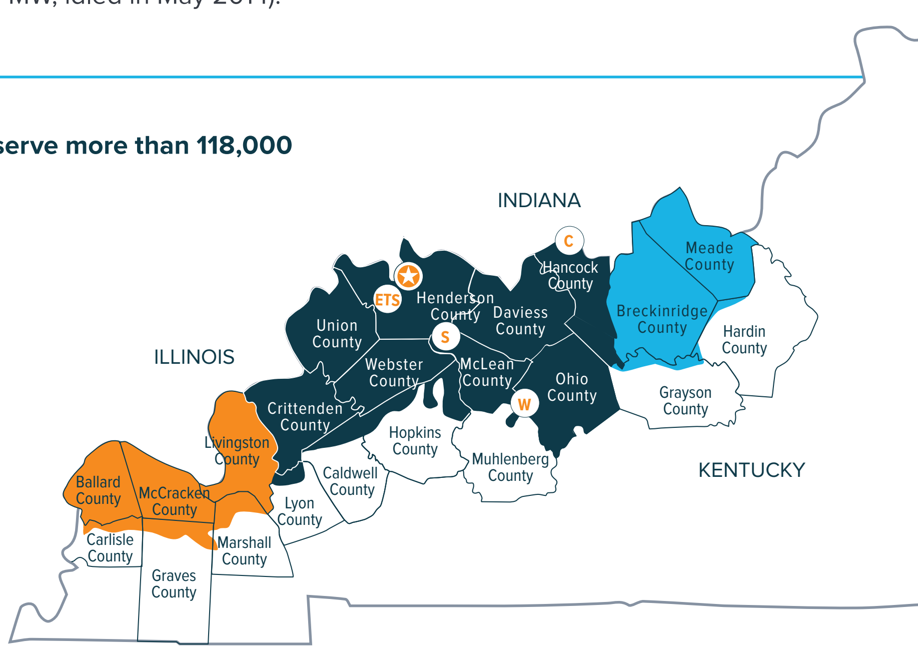
Incorporated in June of 1961, the mission of Big Rivers is to safely deliver competitive and reliable wholesale power and cost-effective shared services desired by the Member-Owners. Business operations revolve around seven core values: safety, excellence, integrity, teamwork, Member and community service, respect for the employee, and environmental consciousness. Big Rivers owns and operates 1,444 net MW of generating capacity from four power stations: Robert D. Green (454 MW), Robert A. Reid (130 MW idled in February 2019), D.B. Wilson (417 MW), and Kenneth C. Coleman (443 MW, idled in May 2014).

Total power capacity is 1,622 MW, including contracted capacity from the Southeastern Power Administration (SEPA). High-voltage electric power is delivered to the Member-Owners over a system of 1,297 miles of transmission lines and 24 substations owned by Big Rivers. Twenty-five transmission interconnections link our system with several surrounding utilities.

Big Rivers is led by an experienced management team and is governed by a six-member board of directors. The board is comprised of two representatives from each Member-Owner. Big Rivers employs approximately 400 people at five locations in Kentucky, who actively contribute to the communities our Member-Owners serve. Continually focused on the needs and local priorities of our Member-Owners, Big Rivers provides shared services in areas such as information technology, mapping and planning, safety programs and training, economic development, environmental support, and member support services. As longstanding members of Touchstone Energy®, Big Rivers and the Member-Owners pledge to serve western Kentucky with integrity, accountability, innovation and a commitment to community. Our priority has always been to keep the cost of electricity affordable and the reliability of service high.

Today, the three Member-Owners of Big Rivers serve more than 118,000 members in 22 western Kentucky counties.

- Big Rivers Headquarters
- Jackson Purchase Energy Corporation
- Meade County Rural Electric Cooperative Corporation
- Kenergy Corp
- S Sebree Station
- W Wilson Station
- C Coleman Station
- ETS Energy Transmission & Substation



Big Rivers Electric Corporation is fueled by a desire to safely deliver competitive and reliable wholesale power.

$44.5 MILLION

in net margins (pre-tier credit) for 2019—the highest achievement of record in the past decade

This pursuit of safety, strategy, and strong financials drive today's services and tomorrow's planning for our three Member-Owners—Jackson Purchase Energy Corporation, Kenergy Corp, and Meade County Rural Electric Cooperative Corporation. Despite major hurdles faced in the company's recent history, we are proud to report that 2019 was a year of even greater progress, with Big Rivers now meeting goals once deemed overly optimistic. These successes would not be possible without our people, who view every challenge as an opportunity to establish Big Rivers as a top Generation and Transmission Cooperative.

Safety remains the leading principle in Big Rivers' mission, and our safety culture is built from the support of every employee. This commitment to personal and coworker safety led us to one of our most decorated and successful safety years on record.

Big Rivers qualified for its 49th Governor's Safety Award in 2019, further solidifying our position as the most decorated entity in Kentucky.

The company was also recognized for its fourth consecutive Kentucky Employers' Mutual Insurance (KEMI) Destiny Award in 2019, which honors a select group of organizations with strong workplace safety programs and low workers compensation rates. Big Rivers strives to be beyond average and compares our safety metrics to the highest performing G&Ts, and 2019's low recordable incident rate puts us ahead of this already high standard. Above all, we measure success by the ability of each person to work and return home safely, which is why we celebrated all locations reaching three years without a lost-time incident in 2019.

The makeup of Big Rivers' workforce continued to transform in 2019, as the unprofitable power contract with Henderson Municipal Power & Light (HMP&L) ended and operations at Station Two ceased in February. While this contract termination led to a reduced number of jobs, a careful years-long plan of hiring freezes, attritions, and voluntary severances across all locations minimized the overall impact. Major changes are rarely easy and require adjustments from many people, but this transition stabilizes and strengthens the company's future. Negotiations with HMP&L regarding decommissioning costs and outstanding fees are ongoing. However, Big Rivers remains dedicated to finding a resolution

Paul Edd Butler
Chair, Board of Directors

Robert W. Berry
President & CEO

and maximizing the economic potential of all our generation assets. Net margins for 2019 reached $44.5 million (before Station Two TIER credit), the highest achievement in the past decade. Combined with the fulfillment of other strategic goals, the steps taken in 2019 bolster the financial standing of Big Rivers, as validated by the S&P ratings upgrade in January. Big Rivers is now looking forward, taking on a 15-year plan to reduce debt by $300 million and cut the annual interest cost in half.

One of the most notable successes of 2019 came from the March announcement of Nucor Corporation's plan to build a $1.35 billion steel plate manufacturing mill in the Meade County Rural Electric Cooperative Corporation service territory.

This development represents a major achievement for our system and for the region, where Nucor expects to add approximately 400 jobs and make one of largest-ever single economic investments in Kentucky. In the months leading up to the announcement, Big Rivers and Meade County RECC employees worked with Nucor to determine the mill's future location and develop innovative transmission and energy supply solutions to guarantee reliable power service within the needed time frame. In addition to the preparations for Nucor's future load and a contract with Owensboro Municipal Utilities set to start in 2020, Big Rivers began delivery to more Nebraska entities and launched service to the Kentucky Municipal Energy Agency. These long-term power contracts have reduced Big Rivers' reliance on short-term energy hedging, and the company now stands in a position where our resources and load are balanced. Big Rivers has made incredible strides in reducing excess capacity, reaching and exceeding mitigation plan goals in just five years. The contract with Nucor also opens new opportunities to diversify Big Rivers' portfolio, and the company is now evaluating contracts that would bring long-term solar power agreements to the system.

The Big Rivers of today looks much different than it has in recent years, but we remain centered on our mission and vision. The company is moving boldly into the next decade, quickly adapting to the shifting environment and creating new solutions that establish Big Rivers as a leading utility. Our employees continue to prioritize safe power production and delivery, providing Big Rivers with a safety record that is second to none for the industry. The combined efforts of Big Rivers' leadership and employees working together from multiple departments enhance our potential, leading to some of 2019's largest financial accomplishments, pushing the reliability of our transmission system to new standards, and developing an even greater level of service to our Member-Owners. When you present good possibilities to good people, they can do great things. Our company's strength is our employees, and that is why we chose to incorporate the name of each employee on the cover of this year's Annual Report. Big Rivers knows that our workforce is **"Powering Possibilities,"** serving as the catalyst for 2019's successes and fostering ideas that will help us meet future challenges.

Robert W Berry

Robert W. Berry
President & CEO

Paul Edd Butler

Paul Edd Butler
Chair, Board of Directors

Encouraging an Employee-Driven Culture of Safety Excellence

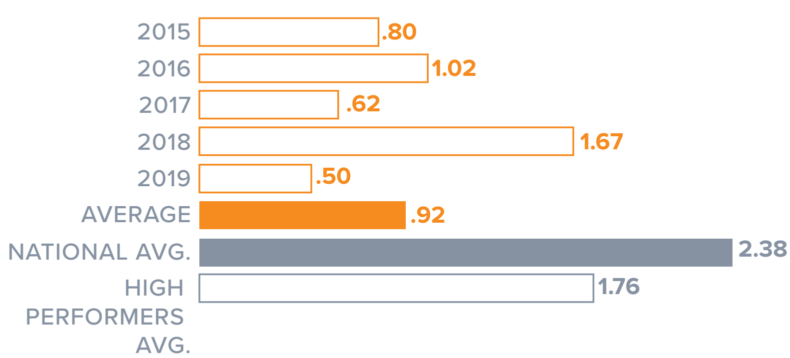
Safety drives Big Rivers' culture, which is built by the support of all employees who make a daily commitment to work safe for themselves and others. 2019 represented one of the most decorated safety achievement years on record, as Big Rivers continued to reach new milestones and celebrated three years without a lost-time injury. Big Rivers' safety focus was further highlighted by the 4th consecutive Kentucky Employers' Mutual Insurance (KEMI) Destiny Award and the 16th Governor's Safety and Health Award earned by Wilson Station, bringing the company total for Governor's Safety and Health Awards to 49.

Big Rivers is never content to rest on safety. While this year's accomplishments surpass national averages, the company will continue to evaluate safety programs for improvement and encourage employee support.

4th consecutive Kentucky Employers' Mutual Insurance Destiny Award. The award honors Kentucky companies for their commitment and success in maintaining a safe workplace.

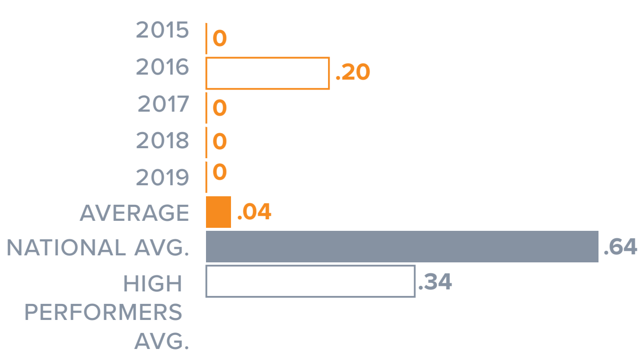
RECORDABLE INCIDENT RATE

Incident rate = # of incidents X 200,000/# of hours worked



LOST-TIME INCIDENT RATE

Incident rate = # of incidents X 200,000/# of hours worked



3 YEARS WITHOUT LOST-TIME INJURY WAS ACHIEVED BY ALL EMPLOYEES

10 YEARS completed without a lost-time incident and 1 year without a recordable incident by Green Station employees

3 YEARS completed without lost-time incident by Wilson Station employees

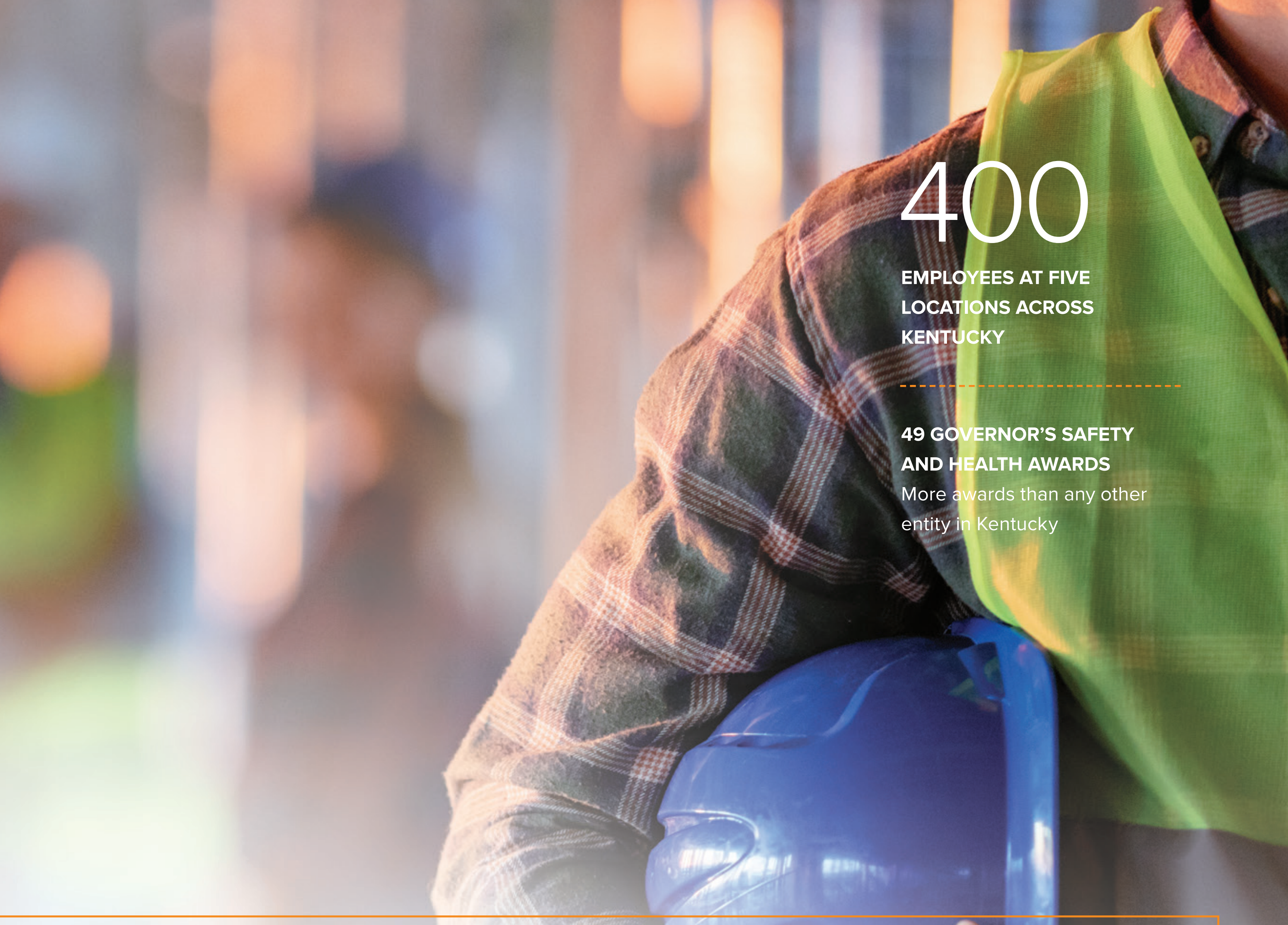
8 YEARS completed without a lost-time incident and 3 years without a recordable incident by Headquarters employees

9 YEARS completed without a lost-time incident and 4 years without a recordable incident by Transmission employees

TAKING A PROACTIVE APPROACH TO IMPROVING SAFETY

WHAT WAS POSSIBLE

In 2017, the Big Rivers safety group set out to improve our corporate safety program by emphasizing the benefits of employee involvement. The goal was to become more proactive by responding to employee-reported leading indicators instead of reacting following an incident. The ultimate goal is to prevent an incident before it occurs.



400

EMPLOYEES AT FIVE LOCATIONS ACROSS KENTUCKY

49 GOVERNOR'S SAFETY AND HEALTH AWARDS

More awards than any other entity in Kentucky

WHAT WAS ACHIEVED

In the past, Big Rivers, as well as most other organizations, have relied on safety suggestions and near miss reporting as the primary method for employees to report potential hazards, in order to prevent incidents. In 2018 Big Rivers implemented the "Good Catch" program. The program is designed to give employees a more user-friendly method of reporting safety concerns/suggestions/near misses, as well as expediting the process of responding to and taking action to address those concerns.

The Good Catch program allows employees to submit safety concerns electronically, without the use of paper forms. The Good Catch reports are automatically distributed across the company, while being retained in a database.

Employees quickly saw results regarding their Good Catch reports, and we immediately noticed a significant increase regarding employee participation in the programs.

In 2017, the year prior to implementing the Good Catch program, Big Rivers received 27 near miss reports. In 2018, Big Rivers received 154 Good Catch reports and 388 Good Catch reports in 2019.

25

INTERCONNECTIONS WITH SURROUNDING UTILITIES

1,297

BIG RIVERS OWNS, OPERATES AND MAINTAINS 1,297 MILES OF TRANSMISSION LINES AND 24 SUBSTATIONS

BIG RIVERS ACHIEVED LESS THAN 3 MINUTES PER YEAR IN AVERAGE MEMBER OUTAGE due to continued implementation of automatic restoration technology

DEVELOPING TECHNOLOGY TO IMPROVE OUTAGE TIME

WHAT WAS POSSIBLE

Although a G&T cooperative has much greater risk exposure to power outages due to the lack of customer density compared to an investor owned utility or a municipal utility, Big Rivers' vision was to achieve higher reliability than more than 75% of utilities in the nation.

WHAT WAS ACHIEVED

In 2019, members served by Big Rivers' transmission system enjoyed some of the highest reliability in the nation. The average member served by Big Rivers' transmission system was out 2.77 minutes due to transmission issues. When you consider there are 525,600 minutes per year, that equates to 99.999% reliability.

Big Rivers' vision is to be one of the top G&Ts in the nation. In order to achieve this vision, Big Rivers needs to have some of the highest transmission system reliability in the nation.

Big Rivers developed a database to identify the primary drivers of power outages and used that information to create a 10-year plan focused on immediate and long-range improvements that would allow the company to achieve continuous top quartile or better performance.

The distributed control system (DCS) or computerized control system graphics underwent an upgrade at Wilson Station in 2019 to provide better operator awareness and alarming.

Using Innovation to Enhance Service and Meet Evolving Power Needs

Big Rivers continuously looks to develop and implement innovative improvements to both transmission and power production. In 2019, Big Rivers' and our Member-Owner Meade County RECC's reliable service took center stage during the process to bring a new NUCOR steel manufacturing mill to Brandenburg. Nucor's $1.35 billion investment represents an exciting step forward for the local economy and a new type of load for Big Rivers. After meeting with Meade County RECC and Big Rivers personnel, the Big Rivers System Operations Department worked closely with Nucor to determine transmission solutions needed to power the 1.5 million-square-foot facility load. In addition, a Certificate of Public Convenience and Necessity (CPCNs) was submitted to the Kentucky Public Service Commission (KPSC), the construction schedule to meet Nucor's projected in-service date was developed, right-of-way (ROW) was acquired to construct new substations and transmission, and financial plans were adjusted to include Nucor projects for future RUS funding.

In May 2019, Big Rivers issued its first Request for Proposals for up to 150 MW of solar capacity and energy. The company received more than 50 proposals for solar developments from all over the Midwest, with many coming from Kentucky. Big Rivers plans to finalize contracts with successful respondents in early 2020, with commercial operation dates in late 2023. This new generation will provide low-cost capacity and energy for our Member-Owners while moving Big Rivers towards a more diversified generation portfolio. Big Rivers also developed an updated environmental strategy to comply with the Coal Combustion Residual Rule (CCR) and Effluent Limitation Guidelines (ELG), incorporating ash pond closures at Station Two, Green Station, and Coleman Station and leachate collection projects at the Green Landfill and Wilson Station.

RELIABILITY METRICS FOR BIG RIVERS' GENERATING UNITS COMPARED TO ITS PEER GROUP JULY 2014-JUNE2019

	EAF*	EFOR**	NCF*
BIG RIVERS' GENERATING UNITS	88.22	6.29	74.06
PEER GROUP MEDIAN	82.05	6.36	57.49
TOP QUARTILE	87.54	3.63	64.75

*Higher is better **Lower is better

EAF (Equivalent Availability Factor): Percentage of time a generating unit is available for power production at its full unit capacity.

EFOR (Equivalent Forced Outage Rate): Percentage of time a generating unit is unexpectedly offline or unable to obtain its rated capacity.

NCF (Net Capacity Factor): Percentage of the maximum generation actually generated.

Big Rivers automatic sectionalizing and restoration system was one of the plan's innovative initiatives. If a transmission line trips, the system will automatically isolate the faulted portion of the system and then automatically restore power to Members via another source in less than two minutes.

Big Rivers successfully completed FERC and NERC audits on Cybersecurity compliance and a SERC audit on Engineering and Operations compliance.

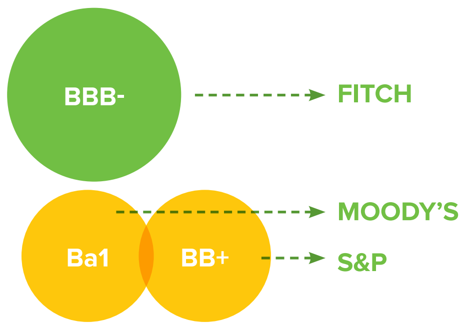
A 2019 Information Systems Department project developed a new browser interface to allow all tracked Big Rivers' vehicles and member-owner vehicles to be shown on a single GIS map, providing a single point of reference for locating vehicles during events, such as energizing a line.

Expanding Our Revenue Streams and Encouraging Financial Stability

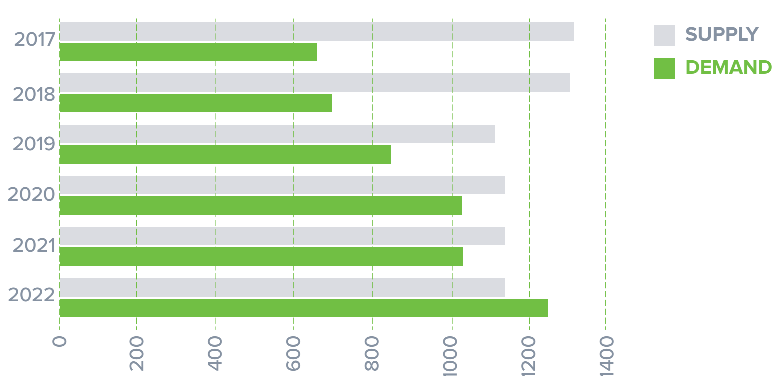
Big Rivers remains committed to improving its financial stability and positioning the company as a leading Generation and Transmission (G&T) cooperative. The strategic moves made during the past five years are coming to fruition, boosting current financials and providing future revenue streams. The 2019 Nucor announcement to construct a new steel manufacturing facility in the Big Rivers service territory and an upcoming contract with Owensboro Municipal Utilities open up the company to new power portfolio opportunities. Big Rivers also expanded on the long-term Nebraska contracts in January 2019 and launched service to the Kentucky Municipal Energy Agency in May 2019. As deliveries under these long-term agreements begin and Big Rivers adjusts its supply portfolio, reliance on short-term energy hedging continues to decrease from a high of 3.4M MWh in 2017 to under 2.0M MWh in 2019.

These successes have not been without difficult decisions. An unprofitable power production contract with Henderson Municipal Power and Light (HMP&L) ended with the retirement of Station Two in February 2019. Big Rivers utilized hiring freezes, attritions, and voluntary severances to limit overall job loss. The workforce reduction plan also resulted in the transfer of employees to positions at Green and Wilson Stations, which required careful coordination between supervision and additional training for transferred employees. The end of this operational agreement resulted in a significant savings for Big Rivers, leading to a record high net margin (pre-tier credit) of more than $44 million in 2019.

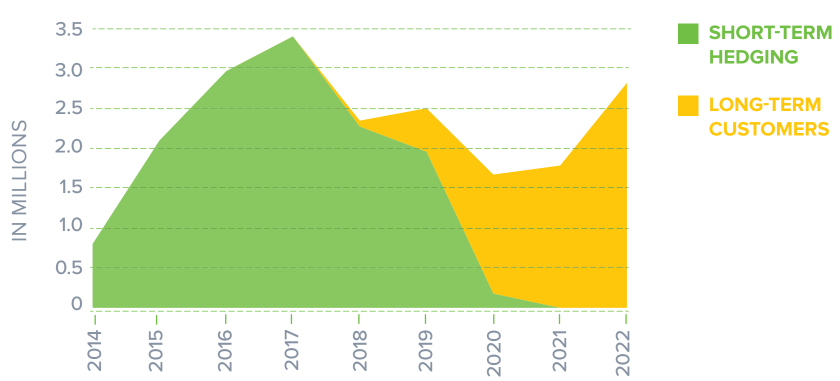
Improved credit ratings represent Big Rivers' dedication to strong financials, fulfillment of the risk mitigation plan, and successful management of long-term power supply. S&P increased its rating for Big Rivers in 2019, following the upgrade from Moody's and the investment grade rating from Fitch in 2018. The higher ratings open Big Rivers to new lending opportunities and lead to significant savings on borrowing.



SUPPLY DEMAND RELATIONSHIP



TRANSITION FROM SHORT-TERM HEDGING TO LONG-TERM CUSTOMERS



SECURING NEW CONTRACTS AND BALANCING OUR RESOURCES

WHAT WAS POSSIBLE

In 2013 and 2014, Big Rivers lost the revenue from our two largest customers. We needed a strategy to protect the investment that our Members had made in our generating resources, maintain our financial health, and continue to provide safe, reliable, and economic energy. We developed a Load Mitigation Plan.

SHORT-TERM HEDGING DECREASED TO 2 MILLION MWH IN 2019, WITH 2020 FORECASTS FALLING BELOW 1 MILLION MWH

$300M

DEBT REDUCTION PLAN OVER THE NEXT 15 YEARS. THE PLAN ALSO INCLUDES CUTTING THE ANNUAL INTEREST COST IN HALF

WHAT WAS ACHIEVED

Big Rivers maintained its financial health during the five years after the loss of the large customer load, while rebalancing our supply portfolio with our demand, and executing several long-term agreements which will provide stable revenues and margins over the next decade.

To reduce the volatility of our revenues and margins while balancing our portfolio, we entered into short-term energy hedges for nearly 1.4M MWh between 2014 and 2019. This smoothed the transition into our longer-term off-system sales contracts.

We made some tough decisions on the supply side, idling our Coleman and Reid 1 generating stations and exiting our power purchase agreement with the City of Henderson, Kentucky. These actions reduced the size of our resource portfolio by 695 MW of coal generation.

Between 2013 and 2016, we executed contracts with five different public power entities with terms between six and ten years, beginning between 2018 and 2020. In 2022, a new Nucor facility in Meade County will add 200 MW of load. Overall, our demand side will have grown by about 575 MW.

$196,256.40
PLEDGED TO LOCAL UNITED WAY CHAPTERS BY BIG RIVERS AND ITS EMPLOYEES

$333
THE AVERAGE UNITED WAY DONATION PER EMPLOYEE IN 2019

52 CHARITIES AND COMMUNITY ORGANIZATIONS RECEIVED FINANCIAL SUPPORT FROM BIG RIVERS IN 2019

CREATING COMMUNITY PROJECTS OF IMPACT

WHAT WAS POSSIBLE

Big Rivers was proud of its long record of supporting local agencies with financial support and an employee base that always encourages fundraising and donating efforts. While this giving provides a valuable funding source for community groups, Big Rivers and its employees desired a greater impact on the community.

Promoting Community Connections with Volunteer and Financial Support

$20,000 invested to support a KY Cabinet for Economic Development and KY Association for Economic Development initiative to improve the state's industrial sites.

Big Rivers strives to build a strong connection to the communities we serve. This is our home, and concern for the community is at the core of the cooperative way. Several Big Rivers employees serve on local economic development agency boards, offering their time and expertise to position western Kentucky as a prime location for business. The Director Legislative Affairs and Government Relations regularly visits with local and state-elected officials to communicate issues important to Big Rivers and its Member-Owners. In October 2019, Big Rivers and the Kentucky Coal Association hosted nearly 30 economic development professionals, judge executives, and legislators at Wilson Station for an open dialogue event and power plant tour. Big Rivers also looks to actively support agencies that strengthen our region, and the company invested more than $100,000 in 54 charities, foundations, volunteer fire departments, and economic development agencies in 2019. Our proudest accomplishment is an employee base that continues to go above and beyond to donate their time and resources to causes that make western Kentucky a better place to live and work.

A centerpiece in our community giving each year is the employee-guided fundraising for local United Way chapters. In 2019, employees pledged to contribute more than $130,000 to the United Way, plus a 50% corporate match of more than $65,000. In 2019, Big Rivers expanded the efforts leading up to the United Way fundraising kickoff events, launching an "Ultimate Giver" food drive contest and the first annual "Impact Week". During this new week-long initiative, 30 employees split into teams to devote one day of service project work for four community agencies. As part of the 2019 Beautify the Bluegrass campaign, employee volunteers completed landscaping for a new mini-park and created a mural for the town of Sebree.

WHAT WAS ACHIEVED

The Beautify the Bluegrass campaign seeks to connect Kentucky's electric cooperatives and local government on community beautification projects, with winning projects selected by the Governor and a public vote. Big Rivers and employee volunteers first joined the program in 2018, holding two cleanup and repair days for local parks. In 2019, Big Rivers sought a project that would fill a significant revitalization need. The company and our employees collaborated with Webster County to landscape a new mini-park and create a mural for the town of Sebree, near where Big Rivers' Sebree Station is located.

Big Rivers reached out to the communities closely connected to company locations, asking local governments for beautification needs. Webster County asked for help in revitalizing a small corner of downtown Sebree to create a new mini-park.

Webster County developed the ideas, two citizens donated empty land and wall space, and Big Rivers brought the funding and labor. More than 20 Big Rivers employee volunteers provided their time and energy to design, paint, and landscape.

During three days in June 2019, the empty Sebree lot was transformed from open space to a landscaped corner and a postcard mural welcoming everyone to Webster County. The project was recognized and promoted statewide as one of four Beautify the Bluegrass campaign finalists.

FIVE-YEAR REVIEW

As of December 31, 2019 and the Four Preceding Years (Dollars in Thousands)

	2019	2018	2017	2016	2015[4]
SUMMARY OF OPERATIONS					
Operating Revenue:					
Electric Energy Revenue	$ $362,252	$ 366,190	$ 394,424	$ 390,357	$ 392,458
Other Operating Revenue and Income	16,475	14,015	12,805	12,233	11,091
Total Operating Revenue	378,727	380,205	407,229	402,590	$ 403,549
Operating Expenses:					
Fuel for Electric Generation	119,831	128,555	126,644	144,148	146,179
Power Purchased	37,893	51,910	100,045	80,341	74,136
Operations (Excluding Fuel), Maintenance and Other	123,062	130,153	110,606	115,606	117,383
Depreciation	21,613	20,709	20,301	19,523	18,636
Regulatory Debit-TIER Credit	27,743	-	-	-	-
Total Operating Expenses	330,142	331,327	357,596	359,618	356,334
Interest Expense and Other:					
Interest	36,937	38,568	40,654	40,711	40,205
Income Tax Expense (Benefit)	(28)	(12)	7	(6,748)	(77)
Other-net	696	717	744	846	464
Total Interest Expense and Other	37,605	39,273	41,405	34,809	40,592
Operating Margin	10,980	9,605	8,228	8,163	6,623
Non-Operating Margin	5,735	5,625	4,770	4,742	4,593
Net Margin	$ 16,715	$ 15,230	$ 12,998	$ 12,905	$ 11,216
BALANCE SHEET					
Total Utility Plant	$ 2,098,129	$ 2,200,397	$ 2,179,899	$ 2,146,205	$ 2,133,820
Accumulated Depreciation	1,193,043	1,187,688	1,138,133	1,094,235	1,053,993
Net Utility Plant	905,086	1,012,709	1,041,766	1,051,970	1,079,827
Cash and Cash Equivalents	30,733	38,466	55,861	48,584	42,988
Restricted Cash-Construction Funds Trustee	353	-	-	-	-
Short-Term Investments	9,437	9,607	9,223	5,913	7,883
Reserve Account Investments[1]	1,391	691	391	312	24,335
Other Assets	402,213	301,413	292,507	270,810	248,094
Total Assets	$ 1,349,213	$ 1,362,886	$ 1,399,748	$ 1,377,589	$ 1,403,127
Equities	$ 523,164	$ 505,816	$ 490,887	$ 478,152	$ 464,661
Long-term Debt[2]	733,942	761,464	801,162	813,829	826,132
Line of Credit	–	–	20,000	26,000	26,000
Regulatory Liabilities - Member Rate Mitigation	2,111	2,031	403	327	21,530
Asset Retirement Obligations	34,557	29,746	28,347	7,279	6,973
Other Liabilities and Deferred Credits	55,439	63,829	58,949	52,002	57,831
Total Liabilities and Equity	$ 1,349,213	$ 1,362,886	$ 1,399,748	$ 1,377,589	$ 1,403,127
ENERGY SALES (MWH)					
Member Rural	2,261,069	2,366,988	2,209,836	2,330,007	2,325,653
Member Large Industrial	946,070	953,808	919,896	914,557	946,150
Other	2,879,231	3,101,659	4,291,555	4,414,268	4,181,748
Total Energy Sales (MWh)	6,086,370	6,422,455	7,421,287	7,658,832	7,453,551
SOURCES OF ENERGY (MWH)					
Generated	4,964,983	5,291,136	5,034,777	5,828,106	5,809,344
Purchased	1,166,472	1,149,102	2,411,882	1,874,584	1,697,296
Losses and Net Interchange	(45,085)	(17,783)	(25,372)	(43,858)	(53,089)
Total Energy Available (MWh)	6,086,370	6,422,455	7,421,287	7,658,832	7,453,551
NET CAPACITY (MW)					
Net Generating Capacity Owned	1,444	1,444	1,444	1,444	1,444
Rights to HMP&L Station Two	-	187	197	197	197
Other Net Capacity Available	178	178	178	178	178
Total Net Capacity (MW)	1,622	1,809	1,819	1,819	1,819
DEBT RATIOS					
Margins for Interest Ratio (MFIR)	1.45	1.39	1.32	1.31	1.29[3]
Times Interest Earned Ratio (TIER)	1.45	1.39	1.32	1.31	1.27
Debt Service Coverage Ratio (DSCR)	1.63	1.22	1.22	1.23	1.20

[1]Includes investment income receivable. [2]Includes current maturities of long-term obligations. [3]Excludes impact of $906 non-recurring charge to income per Big Rivers' Indenture. [4]For year ended December 31, 2016, the Company made a voluntary change in accounting principle from one acceptable method to another. The accounting classification change was applied retrospectively to the year ended December 31, 2015.

BIG RIVERS ELECTRIC CORPORATION

Financial Statements

December 31, 2019 and 2018

(With Independent Auditors' Report Thereon)

KPMG LLP
Suite 2600
400 West Market Street
Louisville, KY 40202

Independent Auditors' Report

The Board of Directors and Members
Big Rivers Electric Corporation:

Report on the Financial Statements

We have audited the accompanying financial statements of Big Rivers Electric Corporation, which comprise the balance sheets as of December 31, 2019 and 2018, and the related statements of operations, comprehensive income, equities, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Big Rivers Electric Corporation as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019 in accordance with U.S. generally accepted accounting principles.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated April 15, 2020, on our consideration of Big Rivers Electric Corporation's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of Big Rivers Electric Corporation's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Big Rivers Electric Corporation's internal control over financial reporting and compliance.

KPMG LLP

Louisville, Kentucky
April 15, 2020

BIG RIVERS ELECTRIC CORPORATION

Balance Sheets

December 31, 2019 and 2018

(Dollars in thousands)

Assets		2019	2018
Utility plant – net	$	905,086	1,012,709
Restricted investments – Member rate mitigation		1,391	691
Restricted investments – NRUCFC Capital Term Certificates		31,609	33,416
Other deposits and investments – at cost		21,474	20,604
Current assets:			
Cash and cash equivalents		30,733	38,466
Restricted cash-construction funds trustee		353	—
Short-term investments		9,437	9,607
Accounts receivable		37,266	33,390
Fuel inventory		26,965	25,028
Nonfuel inventory		24,216	24,864
Prepaid expenses and other assets		4,298	6,961
Total current assets		133,268	138,316
Deferred charges and other assets:			
Regulatory assets		250,562	153,982
Federal tax receivable		54	200
Other		5,769	2,968
Total deferred charges and other assets		256,385	157,150
Total	$	1,349,213	1,362,886
Equities and Liabilities			
Capitalization:			
Equities	$	523,164	505,816
Long-term debt		706,269	734,969
Total capitalization		1,229,433	1,240,785
Current liabilities:			
Current maturities of long-term obligations		27,673	26,495
Purchased power payable		2,702	5,334
Accounts payable		22,328	22,748
Accrued expenses		9,054	11,915
Accrued interest		3,279	3,533
Total current liabilities		65,036	70,025
Deferred credits and other:			
Regulatory liabilities – member rate mitigation		2,111	2,031
Asset retirement obligations		34,557	29,746
Deferred credits and other		18,076	20,299
Total deferred credits and other		54,744	52,076
Commitments and contingencies (note 13)			
Total	$	1,349,213	1,362,886

See accompanying notes to financial statements.

BIG RIVERS ELECTRIC CORPORATION

Statements of Operations

Years ended December 31, 2019, 2018, and 2017

(Dollars in thousands)

		2019	2018	2017
Operating revenue	$	378,727	380,205	407,229
Total operating revenue		378,727	380,205	407,229
Operating expenses:				
Operations:				
Fuel for electric generation		119,831	128,555	126,644
Power purchased and interchanged		37,893	51,910	100,045
Production, excluding fuel		45,918	47,897	42,790
Transmission and other		38,078	34,359	30,763
Maintenance		39,066	47,897	37,053
Depreciation and amortization		21,613	20,709	20,301
Regulatory debit - TIER credit		27,743	—	—
Total operating expenses		330,142	331,327	357,596
Electric operating margin		48,585	48,878	49,633
Interest expense and other:				
Interest		36,937	38,568	40,654
Income tax expense/(benefit)		(28)	(12)	7
Other – net		696	717	744
Total interest expense and other		37,605	39,273	41,405
Operating margin		10,980	9,605	8,228
Nonoperating margin:				
Interest income and other		5,735	5,625	4,770
Total nonoperating margin		5,735	5,625	4,770
Net margin	$	16,715	15,230	12,998

See accompanying notes to financial statements.

BIG RIVERS ELECTRIC CORPORATION

Statements of Comprehensive Income

Years ended December 31, 2019, 2018, and 2017

(Dollars in thousands)

		2019	2018	2017
Net margin	$	16,715	15,230	12,998
Other comprehensive income (loss):				
Defined-benefit plans:				
Prior service cost (benefit)		—	—	(1,077)
Actuarial gain (loss)		1,506	(1,350)	1,938
Amortization of loss		559	804	376
Defined-benefit plans		2,065	(546)	1,237
Postretirement benefits other than pensions:				
Prior service cost		(414)	(138)	(138)
Actuarial gain (loss)		(820)	413	(1,192)
Amortization of (gain)		(198)	(30)	(170)
Postretirement benefits other than pensions		(1,432)	245	(1,500)
Other comprehensive income (loss)		633	(301)	(263)
Comprehensive income	$	17,348	14,929	12,735

See accompanying notes to financial statements.

BIG RIVERS ELECTRIC CORPORATION

Statements of Equities

Years ended December 31, 2019, 2018, and 2017

(Dollars in thousands)

		Total equities	Retained margin	Other equities: Donated capital and memberships	Other equities: Consumers' contributions to debt service	Accumulated other comprehensive income/(loss)
Balance – December 31, 2016	$	478,152	473,802	764	3,681	(95)
Net margin		12,998	12,998	—	—	—
Pension and postretirement benefit plans		(263)	—	—	—	(263)
Balance – December 31, 2017		490,887	486,800	764	3,681	(358)
Net margin		15,230	15,230	—	—	—
Pension and postretirement benefit plans		(301)	—	—	—	(301)
Balance – December 31, 2018		505,816	502,030	764	3,681	(659)
Net margin		16,715	16,715	—	—	—
Pension and postretirement benefit plans		633	—	—	—	633
Balance – December 31, 2019	$	523,164	518,745	764	3,681	(26)

See accompanying notes to financial statements.

BIG RIVERS ELECTRIC CORPORATION

Statements of Cash Flows

Years ended December 31, 2019, 2018, and 2017

(Dollars in thousands)

		2019	2018	2017
Cash flows from operating activities:				
Net margin	$	16,715	15,230	12,998
Adjustments to reconcile net margin to net cash provided by operating activities:				
Depreciation and amortization		21,664	24,365	24,394
Interest compounded – RUS Series A Note		—	26	56
Interest compounded – RUS Series B Note		10,911	10,300	9,724
Interest income compounded – RUS Cushion of Credit (advance payments unapplied)		(169)	(120)	—
Noncash member rate mitigation revenue		(15,578)	(5,525)	(4,292)
Noncash regulatory debit – TIER credit		27,743	—	—
Changes in certain assets and liabilities:				
Accounts receivable		(3,876)	13,007	(8,120)
Inventories		(1,289)	14,186	17,036
Prepaid expenses and other		2,663	(1,621)	1,616
Deferred charges		(13,162)	(3,239)	1,006
Purchased power payable		(2,632)	2,802	1,665
Accounts payable		46	1,726	3,389
Accrued expenses		(3,115)	2,634	(930)
Federal tax receivable		—	—	(1,847)
Other – net		15,113	2,494	10,842
Net cash provided by operating activities		55,034	76,265	67,537
Cash flows from investing activities:				
Capital expenditures		(23,281)	(24,480)	(23,361)
Proceeds from restricted investments and deposits		21,655	1,097	—
Purchases of restricted investments and other deposits and investments		(22,462)	—	(5,017)
Proceeds of short-term investments		11,334	627	2,252
Purchases of short-term investments		(11,165)	(1,011)	(5,562)
Net cash used in investing activities		(23,919)	(23,767)	(31,688)
Cash flows from financing activities:				
Principal payments on long-term obligations		(38,495)	(93,488)	(37,572)
Proceeds from long-term obligations		—	43,595	15,000
Payments on line of credit		—	(20,000)	(26,000)
Borrowing on line of credit		—	—	20,000
Net cash used in financing activities		(38,495)	(69,893)	(28,572)
Net increase/(decrease) in cash and cash equivalents		(7,380)	(17,395)	7,277
Cash and cash equivalents – beginning of year		38,466	55,861	48,584
Cash and cash equivalents – end of year	$	31,086	38,466	55,861
Supplemental cash flow information:				
Cash paid for interest	$	26,487	28,957	31,380
Cash paid for income taxes		2	1	1
Supplemental schedule of non-cash financing and investing activities:				
Change in regulatory assets associated with asset retirement obligations	$	2,897	5,294	23,408
Change in regulatory assets associated with utility plant		83,616	26,417	26,336
Purchases of utility plant in accounts payable		582	(1,236)	425

See accompanying notes to financial statements.

(1) Organization and Summary of Significant Accounting Policies

(a) General Information

Big Rivers Electric Corporation ("Big Rivers" or the "Company"), an electric generation and transmission cooperative, supplies wholesale power to its three member distribution cooperatives (Jackson Purchase Energy Corporation, Kenergy Corp. ("Kenergy"), and Meade County Rural Electric Cooperative Corporation) under all requirements contracts. Big Rivers also markets power to nonmember utilities, power marketers, and the Midcontinent Independent System Operator ("MISO"). The members provide electric power and energy to industrial, residential, and commercial customers located in portions of 22 western Kentucky counties. The wholesale power contracts with the members remain in effect until December 31, 2043. Rates to Big Rivers' members are established by the Kentucky Public Service Commission ("KPSC") and are subject to approval by the Rural Utilities Service ("RUS"). The financial statements of Big Rivers include the provisions of the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC") 980, Regulated Operations, and give recognition to the ratemaking and accounting practices of the KPSC and RUS.

(b) Estimates

The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and disclosure of contingent assets and liabilities. The estimates and assumptions used in the accompanying financial statements are based upon management's evaluation of the relevant facts and circumstances as of the date of the financial statements. Actual results may differ from those estimates.

(c) System of Accounts

Big Rivers maintains its accounting records in accordance with the Uniform System of Accounts as prescribed by the RUS Bulletin 1767B-1, as adopted by the KPSC. These regulatory agencies retain authority and periodically issue orders on various accounting and ratemaking matters. Adjustments to RUS accounting have been made to make the financial statements consistent with generally accepted accounting principles in the United States of America.

(d) Revenue Recognition

Revenues generated from the Company's wholesale power sales are based on month-end meter readings and are recognized as earned when electricity is delivered. Capacity revenues are recognized in the period in which the Company provides capacity to a counterparty.

In May 2014, the FASB issued Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)* (ASU 2014-09). The main principle of the guidance is that an entity should recognize revenue to depict the transfer of promised goods or services to its customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. ASU 2014-09 became effective for the Company for its annual reporting period beginning on January 1, 2019. The Company assessed the impact of adopting the guidance and determined there was no material effect.

(Dollars in thousands)

(e) Utility Plant and Depreciation

Utility plant is recorded at original cost, which includes the cost of contracted services, materials, labor, and overhead. In accordance with FASB ASC 835-20, *Interest – Capitalization of Interest,* the Company also includes capitalized interest on projects with an estimated total cost of $250 or more before consideration of such cost. The interest capitalized is determined by applying the effective rate of Big Rivers' weighted average debt to the accumulated expenditures for qualifying projects included in construction in progress. Replacements of depreciable property units, except minor replacements, are charged to utility plant.

Depreciation of utility plant in service is recorded using the straight-line method over the estimated remaining service lives, as approved by the RUS and KPSC. During 2012, a depreciation study was completed to evaluate the remaining economic lives of the Company's assets and establish new depreciation rates. The study was approved by the RUS in 2012 and by the KPSC in 2014, with the rates becoming effective February 1, 2014. The annual composite depreciation rates used to compute depreciation expense were as follows:

Electric plant	0.35%–25.38%
Transmission plant	1.36%–2.29%
General plant	3.76%–9.88%

For 2019, 2018, and 2017, the average composite depreciation rates were 2.41%, 2.52%, and 2.45%, respectively. At the time plant is disposed of, the original cost plus cost of removal less salvage value of such plant is charged to accumulated depreciation, as required by the RUS.

(f) Impairment Review of Long-Lived Assets

Long-lived assets are reviewed as facts and circumstances indicate that the carrying amount may be impaired. FASB ASC 360, *Property, Plant, and Equipment*, requires the evaluation of impairment by comparing an asset's carrying value to the estimated future cash flows the asset is expected to generate over its remaining life. If this evaluation were to conclude that the future cash flows were not sufficient to recover the carrying value of the asset, an impairment charge would be recorded based on the difference between the asset's carrying amount and its fair value (less costs to sell for assets to be disposed of by sale) as a charge to net margin.

(g) Asset Retirement Obligations

FASB ASC 410-20, *Asset Retirement and Environmental Obligations – Asset Retirement Obligations*, requires legal obligations associated with the retirement of long-lived assets to be recognized at fair value when incurred and capitalized as part of the related long-lived asset. The liability is accreted each period based on the credit-adjusted risk-free rate of return that existed when the liability, or portion thereof, was initially measured. The period accretion is recognized as an increase in the carrying amount of the liability, and the capitalized cost is depreciated over the useful life of the related asset. When the asset is retired, the entity settles the obligation for its recorded amount or incurs a gain or loss.

Big Rivers has recorded liabilities in its financial statements for asset retirement obligations (“AROs”) related to the requirements of the U.S. Environmental Protection Agency’s (“EPA”) Disposal of Coal Combustion Residuals from Electric Utilities Rule (“CCR Final Rule”) and Effluent Limitations Guidelines Rule (“ELG Final Rule”) for the coal ash ponds located at its Green Station and the City of Henderson’s Station Two (“Station Two”) generating units. The CCR Final Rule was published in the Federal Register on April 17, 2015 and provides a comprehensive set of requirements for the safe disposal of CCRs, commonly known as coal ash, from coal-fired power plants. The ELG Final Rule was published in the Federal Register on November 3, 2015, and sets limits on the levels of toxic metals in wastewater that can be discharged from power plants. See Note 3 for further discussion of the Company’s AROs.

(h) Inventory

Inventories are carried at average cost and include coal, petroleum coke, lime, limestone, oil and gas used for electric generation, and materials and supplies used for utility operations. Purchased emission allowances are recorded in inventory at actual cost by each vintage year. Allowances issued by the EPA are recorded at zero cost by each vintage year. Total purchased and EPA issued allowances are carried in inventory at a weighted average cost by each vintage year. Issuances of allowances are accounted for on a vintage basis using a monthly weighted average cost.

(i) Restricted Investments

Certain investments are restricted under KPSC order to establish certain reserve funds for Member rate mitigation. The loan agreement with National Rural Utilities Cooperative Finance Corporation (“CFC”) requires as a condition of the extension of credit, that an equity ownership position be established by all borrowers. Big River’s equity ownership in this organization is less than one percent.

These equity investments do not have readily determinable fair values and are accounted for at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. No impairment or observable price changes were recorded during 2019.

(j) Cash and Cash Equivalents

Big Rivers considers all short-term, highly liquid investments with original maturities of three months or less to be cash equivalents.

(k) Restricted Cash

Big Rivers has restricted cash related to proceeds from the sale of property as required by the RUS loan contract.

(l) Short-Term Investments

Short-term investments include certificates of deposits (CDs) held for investment and investments in debt securities with original maturities greater than three months and less than one year.

(m) Regulatory Assets and Liabilities

FASB ASC 980-10 applies to regulated entities for which rates are designed to recover the costs of providing service. In accordance with this topic, certain items that would normally be reflected in the statement of operations are deferred on the balance sheet. Regulatory assets represent probable future revenues associated with certain incurred costs, which will be recovered from customers through the rate-making process. Regulatory assets are reduced during the period(s) in which the related costs are recovered through rates or when future recovery is no longer probable. Conversely, regulatory liabilities represent future reductions in revenues associated with amounts that are to be credited, or refunded, to members through the regulated rate-making process. Regulatory liabilities are reduced during the period(s) in which the related amounts are refunded to members through rates or when future refunding of the amounts is no longer probable.

(n) Other Deposits and Investments

Other deposits and investments consist primarily of patronage capital, cash collateral/margin call deposits, investments in associated organizations, and deferred compensation.

(o) Income Taxes

Big Rivers was formed as a tax-exempt cooperative organization as described in Internal Revenue Code Section 501(c)(12). To retain tax-exempt status under this section, at least 85% of Big Rivers' annual income must be generated from transactions with the Company's members. In 1983, sales to nonmembers resulted in Big Rivers failing to meet the 85% requirement. Until Big Rivers can meet the 85% member income requirement, the Company will not be eligible for tax-exempt status and will be treated as a taxable cooperative.

As a taxable cooperative, Big Rivers is entitled to exclude the amount of patronage allocations to members from taxable income. Income and expenses related to nonpatronage-sourced operations are taxable to Big Rivers. Big Rivers files a federal income tax return and certain state income tax returns.

Under the provisions of FASB ASC 740, *Income Taxes*, Big Rivers is required to record deferred tax assets and liabilities for temporary differences between amounts reported for financial reporting purposes and amounts reported for income tax purposes. Deferred tax assets and liabilities are determined based upon these temporary differences using enacted tax rates for the year in which these differences are expected to reverse. Deferred income tax expense or benefit is based on the change in assets and liabilities from period to period, subject to an ongoing assessment of realization. Tax benefits associated with income tax positions taken, or expected to be taken, in a tax return are recorded only when the more-likely-than-not recognition threshold is satisfied and measured at the largest amount of benefit that is greater than 50% likely of being realized upon settlement.

(p) Patronage Capital

As provided in the Company's bylaws, Big Rivers accounts for each year's patronage-sourced income, both operating and nonoperating, on a patronage basis. Notwithstanding any other provision of the bylaws, the amount to be allocated as patronage capital for a given year shall not be less than the greater of regular taxable patronage-sourced income or alternative minimum taxable patronage-sourced income.

(q) Derivatives

Management has reviewed the requirements of FASB ASC 815, *Derivatives and Hedging*, and has determined that certain contracts the Company is party to may meet the definition of a derivative under FASB ASC 815. The Company has elected the Normal Purchase and Normal Sale exception for these contracts, and therefore, the contracts are not required to be recognized at fair value in the financial statements.

(r) Fair Value Measurements

FASB ASC 820, *Fair Value Measurement*, defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal, or most advantageous, market for the asset or liability in an orderly transaction between market participants at the measurement date. ASC 820 establishes a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. This hierarchy requires entities to maximize the use of observable inputs when possible. The three levels of inputs used to measure fair value are as follows:

- Level 1 – quoted prices in active markets for identical assets or liabilities;
- Level 2 – observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; or other inputs that are observable or can be corroborated by observable market data; and
- Level 3 – unobservable inputs that are supported by little or no market activity and that are significant to the fair values of the assets or liabilities, including certain pricing models, discounted cash flow methodologies, and similar techniques that use significant unobservable inputs.

(s) Deferred Loan Costs

The Company capitalizes costs incurred in connection with long-term debt. These costs are amortized on various bases over the term of the respective debt financing agreements.

In accordance with Accounting Standards Update (“ASU”) 2015-03, deferred loan costs related to a recognized debt liability are presented on the balance sheet as a direct deduction from the carrying amount of the related debt liability instead of being presented as an asset.

(t) Deferred Credits and Other

Deferred credits and other includes employee related benefits and capacity revenue sales billed but not yet earned. Employee related benefits include, but are not limited to, pension and post-retirement benefit costs and amounted to $16,403 and $17,013 at December 31, 2019 and 2018, respectively. Deferred capacity revenue, which will be recognized within the next year, amounted to $1,673 and $2,878 at December 31, 2019 and 2018, respectively.

(u) New Accounting Guidance

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)* (ASU 2016-02). The main principle of this revised accounting guidance requires that lessees recognize all leases (other than leases with a term of twelve months or less) on the balance sheet as lease liabilities, based upon the present value of the lease payments, with corresponding right of use assets. ASU 2016-02 also makes targeted changes to other aspects of the current guidance, including the lease classification criteria and the lessor accounting model. The amendments in ASU 2016-02 will be effective for the Company for annual reporting periods beginning after December 15, 2020. The Company is currently assessing the impact of adopting the guidance but does not believe it will have a material effect.

(Dollars in thousands)

(2) Utility Plant

At December 31, 2019 and 2018, utility plant is summarized as follows:

		2019	2018
Classified plant in service:			
Production plant	$	1,713,576	1,822,536
Transmission plant		294,407	290,335
General plant		54,416	53,302
Other		67	292
		2,062,466	2,166,465
Less accumulated depreciation		1,193,043	1,187,688
		869,423	978,777
Construction in progress		35,663	33,932
Utility plant – net	$	905,086	1,012,709

Big Rivers’ secured long-term debt obligations and 2015 Syndicated Senior Secured Credit Agreement, as amended September 19, 2017, are secured under Big Rivers’ Indenture dated as of July 1, 2009, as supplemented and amended (the “Indenture”), between Big Rivers and U.S. Bank National Association, as trustee (the “Indenture Trustee”). Obligations are secured under the Indenture by a mortgage lien on substantially all of Big Rivers’ owned tangible, and certain intangible, properties including Big Rivers’ production, transmission, general, and other Utility Plant. See Note 4 for further discussion of Big Rivers’ Debt and Other Long-Term Obligations secured under its Indenture.

Interest capitalized for the years ended December 31, 2019 and 2018, was $207 and $56, respectively.

The Company has identified certain legal obligations, as defined in FASB ASC 410, *Asset Retirement and Environmental Obligations*, associated with the retirement of long-lived assets that require the recognition of a liability. See Note 3 for further discussion of the Company’s asset retirement obligations.

As of December 31, 2019 and 2018, the Company had recorded an estimated $60,723 and $59,996, respectively, related to nonlegal removal costs included in accumulated depreciation as required by the RUS.

(Dollars in thousands)

(3) Asset Retirement Obligations

The Company has AROs arising from legal obligations associated with the retirements of certain long-lived assets. The liabilities were initially measured at fair value and subsequently adjusted for accretion expense and changes in estimated future cash flows. The corresponding asset retirement costs are capitalized as part of the carrying amount of the related long-lived assets and depreciated over their remaining useful lives. The following table presents the activity for the ARO liabilities for the years ended December 31, 2019 and 2018:

		2019		2018	
ARO balance at beginning of year	$	29,746		28,347	
Changes in estimated timing or cost		3,418	(a)	0	
Accretion expense		1,528	(b)	1,399	(b)
Actual costs incurred		(135)		0	
ARO balance at end of year	$	34,557		29,746	

(a) During 2019, a study was completed by an independent engineering firm which provided updated settlement dates and cost estimates for the eventual closures of the ash ponds located at Big Rivers' Green Station and Station Two, for compliance with federal regulations, including the EPA's CCR Final Rule and ELG Final Rule, for which Big Rivers initially recognized ARO liabilities in 2015. The change in estimated settlement dates, as well as the updated present value of cost estimates, to close the Green Station and the Station Two ash ponds, per the 2019 studies, was higher than prior estimates completed by independent engineering firms during 2017. Accordingly, in 2019, Big Rivers recorded adjustments to its ARO liabilities to reflect the change in estimates.

(b) The 2019 and 2018 annual ARO accretion expense of $1,528 and $1,399, respectively, was deferred and included in the Regulatory Assets amount reported on the Company's balance sheet as of December 31, 2019 and 2018. These amounts will be amortized and recognized as expense during the period(s) in which they are recovered through rates.

In 2020, Big Rivers anticipates that the EPA will pass legislation that may require Big Rivers to record a $48,500 ARO liability for Coleman Station's ash ponds.

(Dollars in thousands)

(4) Debt and Other Long-Term Obligations

A detail of long-term debt at December 31, 2019 and 2018 is as follows:

		2019	2018
CFC Refinance Promissory Note, Series 2012B, serial note pricing, 4.30% effective interest rate, final maturity date of May 2032	$	214,712	227,578
RUS 2009 Series B Promissory Note, stated amount of $245,530, no stated interest rate, 5.80% imputed interest rate, maturing December 2023		195,027	184,117
CoBank Promissory Note, Series 2012A, 4.30% fixed interest rate, final maturity date of June 2032		171,442	181,271
County of Ohio, Kentucky, promissory note, 6.0% fixed interest rate, maturing in July 2031		83,300	83,300
CFC Equity Note, Series 2012B, 5.35% fixed interest rate, final maturity date of May 2032		32,229	33,998
2018 RUS Guaranteed FFB Loan, W8, 2.828% fixed interest rate, final maturity date of January 2033		25,228	25,630
2018 RUS Guaranteed FFB Loan, X8, 2.935% fixed interest rate, final maturity date of December 2043		17,836	17,965
CFC Refinance Promissory Note, Series 2017B, 3.69% fixed interest rate, final maturity date of October 2020		—	13,500
Total long-term debt		739,774	767,359
Less current maturities		27,673	26,495
Less unamortized deferred debt issuance costs		2,343	2,575
Less advance payments unapplied – RUS cushion of credit		3,489	3,320
Total long-term debt – net of current maturities, deferred debt issuance costs, and advance payments	$	706,269	734,969

(Continued)

(Dollars in thousands)

The following are scheduled maturities of long-term debt at December 31:

		Amount
Year:		
2020	$	27,673
2021		28,281
2022		30,073
2023		226,414
2024		33,393
Thereafter		393,940
Total	$	739,774

(a) National Rural Utilities Cooperative Finance Corporation (CFC) Refinance and Equity Promissory Notes, 2012B

In July 2012, Big Rivers issued new debt with CFC in the form of a secured term loan in the amount of $302,000 (the “Refinance Note”) and a CFC Equity Note in the amount of $43,156. The Refinance Note is secured under Big Rivers’ Indenture, dated July 1, 2009 between the Company and U.S. Bank National Association, and consists of twenty individual notes with different fixed interest rates ranging from 3.05% to 5.35%. The Refinance Note has an effective interest rate of 4.30% and a final maturity date of May 2032.

The Equity Note has a fixed interest rate of 5.35% and a final maturity date of May 2032. The proceeds of the CFC Equity Note were used to purchase interest-bearing Capital Term Certificates (CTCs), as required in connection with the Refinance Note (Note 8).

(b) RUS Notes

On July 15, 2009, Big Rivers’ previous RUS debt was replaced with the RUS 2009 Promissory Note Series A (the “RUS Series A Note”) and the RUS 2009 Promissory Note Series B (the “RUS Series B Note”).

In April 2018, Big Rivers prepaid the RUS Series A Note in full, using available general funds, when the total outstanding principal balance was $65,300. The RUS Series A Note had a stated interest rate of 5.75%, was recorded at an imputed interest rate of 5.84%, and was secured under Big Rivers’ Indenture. The original maturity date of the RUS Series A Note was July 2021.

The RUS Series B Note has no stated interest rate, is recorded at an imputed interest rate of 5.80%, and is secured under Big Rivers’ Indenture. The $245,530 stated amount of the RUS Series B Note is due December 2023.

(c) CoBank, ACB (CoBank) Promissory Note, Series 2012A

In July 2012, Big Rivers issued new debt with CoBank in the form of a secured term loan in the amount of $235,000, which is secured under Big Rivers' Indenture. The loan has a fixed interest rate of 4.30% and a final maturity date of June 2032.

(d) Pollution Control Bonds

In June 2010, the County of Ohio, Kentucky, issued $83,300 of Pollution Control Refunding Revenue Bonds, Series 2010A ("Series 2010A Bonds"), the proceeds of which are supported by a promissory note from Big Rivers, which bears the same interest rate as the bonds and is secured under Big Rivers' Indenture. These bonds bear interest at a fixed rate of 6.00% and mature in July 2031. These bonds are subject to an optional redemption on or after July 15, 2020. Big Rivers plans to redeem and reissue these bonds in 2020.

(e) 2018 RUS Guaranteed FFB Loan, W8

In April 2018, Big Rivers received a $25,630 loan from the Federal Financing Bank (FFB) (the "W8 Loan") which is guaranteed by the RUS and secured under Big Rivers' Indenture. The W8 Loan is for long-term financing of capital projects included in Big Rivers' 2012 Environmental Compliance Plan (ECP) to comply with the EPA's Mercury and Air Toxics Standards (MATS) rule. These capital projects were completed in 2016 and were originally funded with Big Rivers' general funds. Accordingly, the proceeds of the W8 Loan were used to replenish Big Rivers' general funds. The W8 Loan has a fixed interest rate of 2.828%, which includes a 0.125% RUS administration fee, and has a final maturity date of January 2033.

(f) 2018 RUS Guaranteed FFB Loan, X8

In April 2018, Big Rivers received a $17,965 loan from the FFB, (the "X8 Loan") which is guaranteed by the RUS and secured under Big Rivers' Indenture. The X8 Loan is for long-term financing of capital projects included in Big Rivers' 2013-2015 Transmission Construction Work Plan, which were completed in 2017 and were originally funded with Big Rivers' general funds. Accordingly, the proceeds of the X8 Loan were used to replenish Big Rivers' general funds. The X8 Loan has a fixed interest rate of 2.935%, which includes a 0.125% RUS administration fee, and has a final maturity date of December 2043.

(g) CFC Refinance Promissory Note, Series 2017B

In October 2017, Big Rivers borrowed $15,000 from CFC at a fixed interest rate of 3.69%, the proceeds of which were used to prepay a portion of the RUS Series A Note. The CFC note was secured under Big Rivers' Indenture and had a final maturity date of October 2020. Big Rivers prepaid the outstanding balance and associated interest and fees for the CFC note on December 20, 2019.

(h) Line of Credit

On March 5, 2015, Big Rivers entered into a $130,000 Syndicated Senior Secured Credit Agreement (the "2015 Agreement") with CFC, CoBank, Fifth Third Bank, KeyBank National Association, and Regions Bank. In conjunction with the 2015 Agreement, Big Rivers issued secured promissory notes (the "Series 2015A Notes"), equal to each lender's commitment, which are secured under Big Rivers' Indenture.

On September 19, 2017, the 2015 Agreement was amended to, among other things, reduce the total facility amount from $130,000 to $100,000, and extend the maturity date from March 5, 2018 to September 18, 2020.

Big Rivers is in the process of amending and extending the 2015 Agreement during 2020. The line of credit is expected to increase and a provision will be added for two, one-year, extensions. The closing for the line of credit is expected to occur in the second quarter of 2020, pending regulatory approval.

As of December 31, 2019, Big Rivers had no outstanding borrowings under the 2015 Agreement and $7,579 in issued letters of credit outstanding, which reduced its available borrowing capacity under the 2015 Agreement from $100,000 to $92,421.

As of December 31, 2018, Big Rivers had no outstanding borrowings under the 2015 Agreement and $7,729 in issued letters of credit outstanding, which reduced its available borrowing capacity under the 2015 Agreement from $100,000 to $92,271.

(i) RUS Cushion of Credit

In 2018, Big Rivers began participating in the cushion of credit program administered by the RUS in conjunction with the execution of the 2018 W8 and X8 RUS Guaranteed FFB Loans. Under the cushion of credit program, RUS borrowers may make voluntary irrevocable deposits into the cushion of credit account which, during 2019, accrued interest at an annual rate of 5.0%. Per the terms of the RUS' commitment to guarantee Big Rivers' W8 and X8 Loans, Big Rivers agreed to make an initial deposit of $3,200 to the cushion of credit account upon receipt of the loan funds and to make additional deposits, as needed, so that the balance at the beginning of each year going forward is equal to or greater than the annual payments due on the W8 and X8 Loans during the year.

Big Rivers' amounts in the cushion of credit account (deposits and accrued interest) may only be used to make scheduled principal and interest payments on the W8 and X8 Loans. As of December 31, 2019 and 2018, Big Rivers' balance in the RUS cushion of credit account was $3,489 and $3,320, respectively, which is included on the Company's balance sheet as a reduction to long-term debt.

(j) Covenants

Big Rivers is in compliance with all debt covenants associated with both its long-term and short-term debt obligations. The Company's Indenture and other debt agreements require that a Margins for Interest Ratio (MFIR) of at least 1.10 be maintained for each fiscal year. The 2015 Agreement requires that Big Rivers, throughout the duration of the agreement, maintain a minimum Members' Equities balance at each fiscal quarter-end and year-end of $375,000 plus 50% of the Company's cumulative positive net margins for each of the preceding fiscal years, beginning with the fiscal year ended December 31, 2015. Big Rivers' MFIR for the fiscal year ended December 31, 2019 was 1.45, and its Members' Equities balance was $523,164.

 (Continued)

An MFIR of less than 1.10, per the Indenture and other debt agreements, may result in the following actions, restrictions, or consequences: Big Rivers may not secure additional debt under the Indenture; the Company must seek rates that are reasonably expected to yield a 1.10 MFIR; the Company must provide a written plan satisfactory to the RUS setting forth actions to be taken to achieve the specified MFIR on a timely basis; an event of default may occur; interest rates may increase; and its line of credit may be terminated with an acceleration of any outstanding amounts becoming due immediately.

In accordance with the Amended and Consolidated Loan Contract between Big Rivers and the United States of America (acting by and through the RUS Administrator), Big Rivers provided notification to the RUS Administrator, via letter dated February 7, 2013, of a failure to maintain two Credit Ratings of Investment Grade. In order to remain compliant under the Amended and Consolidated Loan Contract, in March 2013, the Company, prepared and presented to the RUS, its Corrective Action Plan setting forth the actions to be taken by management, that are reasonably expected to achieve two Credit Ratings of Investment Grade. The Company regularly updates the RUS on actions taken to date related to its Corrective Action Plan.

(5) Rate Matters

The rates charged to Big Rivers' members consist of a demand charge per kilowatt (kW) and an energy charge per kilowatt-hour (kWh) consumed as approved by the KPSC. The rates include specific demand and energy charges for its members' two classes of customers, the large industrial customers and the rural customers, under its jurisdiction. For the large industrial customers, the demand charge is generally based on each customer's maximum demand during the current month. For the rural customers, the demand charge is based on Maximum Adjusted Net Local Load (as defined in Big Rivers' tariff).

The Company has certain KPSC approved tariff riders; including a fuel adjustment clause and an environmental surcharge. The net effect of these tariffs is recognized as revenue on a monthly basis with an offset to the regulatory liability – member rate mitigation described below.

The net impact of the tariff riders to members' rates is currently mitigated by a Member Rate Stability Mechanism (MRSM) that is held by Big Rivers as restricted investments. An offsetting regulatory liability – member rate mitigation reflects the obligation associated with the funding of these reserve accounts. As described below, Big Rivers has proposed certain changes to its MRSM.

The KPSC entered an order on October 29, 2013, granting Big Rivers an annual revenue increase of $54,227, effective August 20, 2013 (Case No. 2012-00535). In its order, the KPSC excluded the Coleman plant depreciation from rate recovery. The KPSC directed the Company to defer this depreciation expense and record the deferred amounts in a regulatory asset account. The KPSC's order indicated this action was being taken due to the planned temporary idling of Coleman, the length of time the plant will be idled, and the impact of the rate increase on customers. As of December 31, 2019, cumulative depreciation expense of $37,245 was deferred for the Coleman plant, which management believes is probable of recovery in future rates.

The KPSC entered an order on April 25, 2014, granting Big Rivers an annual revenue increase of $36,160, effective February 1, 2014 (Case No. 2013-00199). In its order, the KPSC approved Big Rivers' 2012 Depreciation Study, but excluded Wilson plant depreciation from rate recovery. The KPSC directed the

Company to defer the Wilson depreciation expense and record in a regulatory asset account, similar to the Coleman depreciation expense deferral per the KPSC's order in Case No. 2012-00535. As of December 31, 2019, cumulative depreciation expense of $120,544 was deferred for the Wilson plant, which management believes is probable of recovery in future rates. The KPSC also approved Big Rivers' proposal to temporarily offset the rate increase by utilization of the MRSM. The KPSC further granted Big Rivers' proposed accounting treatment for transmission revenues related to the Hawesville smelter but included the test year transmission revenues related to the Sebree smelter in the determination of Big Rivers' revenue requirement. The net effect of this accounting treatment was the recognition of revenue on a monthly basis with an offset to the applicable regulatory liability accounts as the reserve funds were used to offset the impact of the base rate increase on the members' monthly bills. Effective July 17, 2009, the KPSC approved the implementation of the Non-Fuel Adjustment Clause-Purchased Power Adjustment (Non-FAC PPA) which is a rate mechanism allowing Big Rivers to recover certain costs of purchased power that are not recoverable through its Fuel Adjustment Clause (FAC). An accrual is recorded monthly to a regulatory asset or liability account based on the difference between the actual purchased power costs recoverable through the Non-FAC PPA and the purchased power base cost included in base rates. The balance in the regulatory asset or liability account as of June 30 each year is billed or refunded to members during the following twelve-month period beginning September 1 through August 31 of the following year.

The CCR Final Rule requires Big Rivers to address the eventual permanent closures of its coal ash ponds. Big Rivers believes it will face significant liabilities with respect to the treatment of the ash ponds at its Green Station and Station Two generating stations upon closure of the ash ponds. In accordance with FASB ASC 410-20, *Asset Retirement and Environmental Obligations – Asset Retirement Obligations* and under the RUS Uniform System of Accounts, Big Rivers initially recognized its coal ash pond AROs at fair value and subsequently adjusted for accretion expense and changes in estimated costs as of December 31, 2019 (Note 3).

On January 5, 2016, the KPSC issued an order in Case No. 2015-00333 approving Big Rivers' request to establish regulatory assets for the deferral of certain expenses it would incur for compliance with the CCR Final Rule, including accretion and depreciation expense related to the AROs and other incremental expenses. As of December 31, 2019, the total amount of CCR-related expenses and costs for asset retirement obligations deferred and included in Regulatory Assets on the Company's balance sheet was $21,103.

On July 21, 2015, the KPSC issued an order in Case No. 2014-00134 approving the Nebraska Consortium contracts and the Stipulation and Recommendation (the "Stipulation") between Big Rivers, the Office of the Attorney General, and the Kentucky Industrial Utility Customers (KIUC). The Stipulation stated that Nebraska margins would flow back to Big Rivers' members through the MRSM tariff if, for the previous year, certain financial metrics were achieved. For the year ended December 31, 2019, Big Rivers did not meet these requirements.

On August 29, 2018, the KPSC entered an order (Case No. 2018-00146) (i) finding that the Station Two units were no longer capable of the normal, continuous, reliable operation for the economically competitive production of electricity; (ii) finding that the Station Two contracts, except for the Joint Facilities Agreement, have therefore terminiated pursuant to their own terms; (iii) granting Big Rivers' request for authority to continue to operate Station Two under terms of the Station Two contracts for a period up to May 31, 2019;

and (iv) reserving a ruling on Big Rivers' request for authority to establish a Station Two regulatory asset. The remaining issues in this case were resolved with a Settlement Agreement between the Office of the Attorney General, the KIUC, and Big Rivers. The Settlement Agreement provided that the KPSC would approve the Station Two regulatory asset, that Big Rivers would establish a Station Two Depreciation Credit, starting in the month that Station Two is retired, to reduce customer bills based on the revenues Big Rivers would receive associated with depreciation expense on Station Two, that Big Rivers would establish a TIER Credit to reduce existing regulatory assets in the event Big Rivers achieves a TIER in excess of 1.45 in 2019 or 2020, and that in Big Rivers' next general rate case, the intervenors would support Big Rivers' recovery of the Station Two, Wilson plant, and, conditionally, the Coleman plant regulatory assets. On October 23, 2018, the KPSC issued a final order approving the Settlement Agreement in full. RUS approved the Settlement Agreement on February 22, 2019. Big Rivers retired Station Two on January 31, 2019. On February 26, 2019, Big Rivers filed revised tariff sheets with the KPSC to incorporate the Station Two Depreciation Credit. For the year ended December 31, 2019, the amount of Station Two assets transferred from utility plant to the Station Two regulatory asset was $84,936; the Station Two Depreciation Credit was $5,490; and Big Rivers' TIER Credit was $27,743.

On December 12, 2018, the KPSC approved Big Rivers' request to phase out its existing Demand Side Management (DSM) programs, to establish a new Low-Income Weatherization Program, and to establish a regulatory liability for the savings associated with the phase out of the existing DSM programs.

(Dollars in thousands)

In connection with the rate matters discussed above, the following tables provide a summary of Regulatory Assets and Liabilities reflected in the Balance Sheet as of December 31, 2019 and 2018:

		Regulatory assets	
		2019	2018
Coleman plant deferred depreciation	$	37,245	31,418
Wilson plant deferred depreciation		120,544	99,949
Rate case expense and other		676	676
Non-FAC PPA		8,313	8,293
Asset retirement obligations		13,169	10,272
Environmental costs (CCR)		7,934	1,068
Station Two contract termination		90,424	2,306
Subtotal regulatory assets	$	278,305	153,982
TIER Credit		(27,743)	—
Total regulatory assets	$	250,562	153,982

		Regulatory liabilities	
		2019	2018
Economic reserve-member rate mitigation	$	1,406	2,031
Demand side management		705	—
Total regulatory liabilities	$	2,111	2,031

On February 7, 2020, Big Rivers filed an application with the KPSC for approval of Big Rivers’ 2020 Environmental Compliance Plan (“2020 ECP”), which includes requests for authority to close the Green Station and Station Two ash ponds, to move the Coleman Station flue gas desulfurization system (FGD) to Wilson Station to replace Wilson’s FGD, and to complete several CCR-related projects. Big Rivers also requested authority to close the Coleman Station ash ponds should Big Rivers be required to do so in compliance with certain environmental regulations. The total capital cost of the projects included in the 2020 ECP (including the Coleman ash ponds) is projected to be $232,340. In the 2020 ECP proceeding, Big Rivers is also requesting the authority to recover through its existing environmental surcharge tariff rider the costs of the 2020 ECP, including the costs of the new projects in the plan as well as the costs of Big Rivers’ existing CCR-related regulatory assets. The 2020 ECP case is pending.

On February 28, 2020, Big Rivers filed an application with the KPSC seeking approval to cease the deferral of the Coleman and Wilson Station depreciation expense; to retire the Coleman Station and Reid Station Unit 1 subject to receiving the KPSC’s and RUS’ approval to establish regulatory assets for the remaining net book value of both stations and for other costs related to their retirement, including the cost to decommission the units; to cease deferring DSM-related savings through the DSM regulatory liability; to recover through existing rates the Coleman and Wilson depreciation-related regulatory assets, the Station

Two contract termination-related regulatory asset, and the Coleman and Reid Unit 1 retirement-related regulatory assets (collectively, the “Smelter Loss Mitigation Regulatory Assets”) by amortizing the balance of those assets (less the current balance of the DSM regulatory liability and 80% of the headroom Big Rivers has in equity over the minimum equity levels required by its loan covenants) over the remaining life of all-requirements contracts with its Members (i.e., through December 31, 2043). In addition, Big Rivers proposes a new TIER credit, and the modification of its MRSM tariff, under which one-half of the margins Big Rivers earns over the margins that would produce a 1.30 TIER is credited to Members and the other half is used to further reduce the balances of the Smelter Loss Mitigation Regulatory Assets. This case is pending.

(6) Income Taxes

At December 31, 2019, Big Rivers had a Non-Patron Net Operating Loss (NOL) Carryforward of approximately $30,467 expiring at various times between 2029 and 2039 which was entirely offset by a full valuation allowance.

At December 31, 2019, the Company also had an Alternative Minimum Tax (AMT) Credit Carryforward of $107. The Company expects to claim a refund of AMT credit carryforwards of $54 on its 2019 federal tax return.

On December 22, 2017, the U.S. government enacted comprehensive Federal tax legislation commonly referred to as the Tax Cuts and Jobs Act of 2017 (the ”Tax Act”). The Tax Act significantly modified the U.S. corporate income tax system by, among other things, reducing the corporate income tax rate from 35% to 21% for tax years beginning after December 31, 2017. The income tax effects of changes in tax laws are recognized in the period when enacted. In addition to the reduction to the corporate tax rate, the Tax Act also repealed AMT as well as IRC Section 168(k)(4). For tax years beginning in 2018, 2019, and 2020, to the extent that AMT credit carryovers exceed regular tax liability (as reduced by certain other credits), 50% of the excess AMT credit carryovers are refundable. Any remaining AMT credits will be fully refundable in 2021. The Tax Act also requires deferred AMT refunds previously reported on the balance sheet in Other Deferred Charges to be reported as a long-term receivable. At December 31, 2019 and 2018, Big Rivers reported $54 and $200, respectively, as Federal Tax Receivable.

(Dollars in thousands)

The components of the net deferred tax assets as of December 31, 2019 and 2018 were as follows:

		2019	2018
Deferred tax assets:			
Net operating loss carryforward	$	7,602	4,223
Fixed asset basis difference		1,730	707
Total deferred tax assets		9,332	4,930
Deferred tax liabilities:			
RUS Series B Note		(3,343)	(3,343)
Bond refunding costs		(62)	(67)
Total deferred tax liabilities		(3,405)	(3,410)
Net deferred tax asset (prevaluation allowance)		5,927	1,520
Valuation allowance		(5,927)	(1,520)
Net deferred tax asset	$	—	—

A reconciliation of the Company’s effective tax rate for 2019, 2018, and 2017 is as follows:

	2019	2018	2017
Federal rate	21.0%	21.0%	35.0%
State rate – net of federal benefit	4.0	4.0	4.7
Permanent differences	0.5	0.3	0.4
Patronage allocation to members	(25.4)	(25.3)	(40.2)
Alternative minimum tax credit recovery	(0.3)	(0.3)	—
Effective tax rate	(0.2)%	(0.3)%	(0.1)%

The Company files a federal income tax return, as well as certain state income tax returns. The years currently open for federal income tax examination are 2016 through 2018. The major state tax jurisdiction currently open for income tax examination is Kentucky for years 2015 through 2018. The Company has not recorded any unrecognized tax benefits or liabilities related to federal or state income taxes.

The Company classifies tax-related interest and penalties as an operating expense on the statement of operations and accrued expenses on the balance sheet. No material tax-related interest or penalties have been recorded during 2019, 2018, or 2017.

(7) Pension Plans

(a) Defined-Benefit Plans

Big Rivers has a noncontributory defined-benefit pension plan covering substantially all employees who meet minimum age and service requirements and who were employed by the Company prior to the plan closure dates cited below. The plan provides benefits based on the participants' years of service and the five highest consecutive years' compensation during the last ten years of employment. Big Rivers' policy is to fund such plan in accordance with the requirements of the Employee Retirement Income Security Act of 1974.

Prior to January 1, 2014, Big Rivers had two separate defined-benefit pension plans. The salaried employees' defined-benefit plan was closed to new entrants effective January 1, 2008, and the bargaining employees' defined-benefit plan was closed to new hires effective November 1, 2008. The Company simultaneously established base contribution accounts in the defined-contribution thrift and 401(k) savings plans, which were renamed as the retirement savings plans. The base contribution account for an eligible employee, which is one who meets the minimum age and service requirements, but for whom membership in the defined-benefit plan is closed, is funded by employer contributions based on graduated percentages of the employee's pay, depending on his or her age.

In order to meet minimum participation requirements, Big Rivers' salaried employees defined benefit plan was merged into the bargaining employees defined benefit plan. The merger was effective January 1, 2014 for purposes of Internal Revenue Code and effective December 31, 2014 for all other purposes. Effective January 1, 2017, participation was frozen in the merged plan for highly compensated employees in order to comply with IRS code section 401(a)(26).

The Company has adopted FASB ASC 715, *Compensation – Retirement Benefits*, including the requirement to recognize the funded status of its pension plan and other postretirement plans (Note 11 – Postretirement Benefits Other than Pensions). ASC 715 defines the funded status of a defined-benefit pension plan as the fair value of its assets less its projected benefit obligation, which includes projected salary increases and defines the funded status of any other postretirement plan as the fair value of its assets less its accumulated postretirement benefit obligation.

ASC 715 also requires an employer to measure the funded status of a plan as of the date of its year-end balance sheet and requires disclosure in the notes to the financial statements of certain additional information related to net periodic benefit costs for the next fiscal year. The Company's pension and other postretirement benefit plans are measured as of December 31, 2019 and 2018.

(Dollars in thousands)

The following provides an overview of the Company's noncontributory defined-benefit pension plan.

A reconciliation of the Company's benefit obligations of its noncontributory defined-benefit pension plan at December 31, 2019 and 2018 is as follows:

		2019	2018
Benefit obligation – beginning of period	$	20,962	22,176
Service cost – benefits earned during the period		599	766
Interest cost on projected benefit obligation		834	762
Benefits paid		(2,233)	(2,304)
Actuarial loss (gain)		1,458	(438)
Benefit obligation – end of period	$	21,620	20,962

Big Rivers' defined-benefit pension plan provides retirees and terminated employees with a lump-sum payment option. Benefits paid in 2019 include lump-sum payments totaling $2,193 – the result of five retirees or terminated employees electing the lump-sum payment option. Benefits paid in 2018 include lump-sum payments totaling $2,264 – the result of four retirees or terminated employees electing the lump-sum payment option.

The accumulated benefit obligation for the defined-benefit pension plan was $17,545 and $16,934 at December 31, 2019 and 2018, respectively.

A reconciliation of the Company's pension plan assets at December 31, 2019 and 2018 is as follows:

		2019	2018
Fair value of plan assets – beginning of period	$	18,973	19,851
Employer contributions		—	1,971
Actual return on plan assets		4,158	(545)
Benefits paid		(2,233)	(2,304)
Fair value of plan assets – end of period	$	20,898	18,973

The funded status of the Company's pension plan at December 31, 2019 and 2018 is as follows:

		2019	2018
Benefit obligation – end of period	$	(21,620)	(20,962)
Fair value of plan assets – end of period		20,898	18,973
Funded status	$	(722)	(1,989)

(Dollars in thousands)

Components of net periodic pension costs for the years ended December 31, 2019, 2018, and 2017 were as follows:

		2019	2018	2017
Service cost	$	599	766	798
Interest cost		834	762	801
Expected return on plan assets		(1,194)	(1,243)	(1,262)
Amortization of prior service cost		(33)	(33)	(33)
Amortization of actuarial loss		325	304	409
Settlement loss		268	533	—
Net periodic benefit cost	$	799	1,089	713

A reconciliation of the pension plan amounts in accumulated other comprehensive income at December 31, 2019 and 2018 is as follows:

		2019	2018
Prior service cost	$	22	55
Unamortized actuarial loss		(2,617)	(4,716)
Accumulated other comprehensive income	$	(2,595)	(4,661)

In 2020, $33 of prior service credit and $47 of actuarial loss is expected to be amortized to periodic pension benefit cost.

The recognized adjustments to other comprehensive income at December 31, 2019 and 2018 are as follows:

		2019	2018
Prior service cost	$	—	—
Unamortized actuarial gain/(loss)		(2,065)	546
Other comprehensive (income)/loss	$	(2,065)	546

At December 31, 2019 and 2018, amounts recognized in the balance sheets were as follows:

		2019	2018
Deferred credits and other	$	(722)	(1,989)

(Continued)

(Dollars in thousands)

Assumptions used to develop the projected benefit obligation and determine the net periodic benefit cost were as follows:

	2019	2018	2017
Discount rate – projected benefit obligation	2.99%	4.12%	3.44%
Discount rate – net periodic benefit cost	4.12	3.44	3.80
Rates of increase in compensation levels	4.00	4.00	4.00
Expected long-term rate of return on assets	6.50	6.50	7.00

The expected long-term rate of return on plan assets for determining net periodic pension cost for each fiscal year is chosen by the Company from a best estimate range determined by applying anticipated long-term returns and long-term volatility for various asset categories to the target asset allocation of the plan. The expected long-term rate of return on assets is based on the median expected rate of return for a passively-managed portfolio plus the incremental return from active management.

Big Rivers utilizes a third-party investment manager for the plan assets, and has communicated thereto the Company's Retirement Plan Investment Policy, including a target asset allocation mix of 50% U.S. equities (an acceptable range of 45%–55%), 15% international equities (an acceptable range of 10%–20%), and 35% fixed income (an acceptable range of 30%–40%). As of December 31, 2019 and 2018, the investment allocation was 55% and 54%, respectively, in U.S. equities, 12% and 11%, respectively, in international equities, and 33% and 35%, respectively, in fixed income. The objective of the investment program seeks to (a) maximize return on investment, (b) minimize volatility, (c) minimize Company contributions, and (d) provide the employee benefit in accordance with the plan. The portfolio is well diversified and of high quality. The average quality of the fixed income investments must be "A" or better. The equity portfolio must also be of investment grade quality. The performance of the investment manager is reviewed semiannually.

(Continued)

(Dollars in thousands)

At December 31, 2019 and 2018, the fair value of Big Rivers' defined-benefit pension plan assets by asset category are as follows:

	Level 1	Level 2	December 31, 2019
Cash and money market	$ 607	—	607
Equity securities:			
Common stock	8,792	—	8,792
Preferred stock	538	—	538
Mutual funds	5,183	—	5,183
Fixed:			
Tax exempt bonds and notes	—	2,250	2,250
Corporate bonds and notes	—	3,528	3,528
	$ 15,120	5,778	20,898

	Level 1	Level 2	December 31, 2018
Cash and money market	$ 932	—	932
Equity securities:			
Common stock	6,939	—	6,939
Preferred stock	425	—	425
Mutual funds	5,478	—	5,478
Fixed:			
Tax exempt bonds and notes	—	2,426	2,426
Corporate bonds and notes	—	2,773	2,773
	$ 13,774	5,199	18,973

(Dollars in thousands)

Expected retiree pension benefit payments projected to be required during the years following 2019 are as follows:

		Amount
Year ending December 31:		
2020	$	1,099
2021		1,785
2022		1,584
2023		1,729
2024		2,412
Thereafter		9,089
Total	$	17,698

(b) *Defined-Contribution Plans*

Big Rivers has two defined-contribution retirement plans covering substantially all employees who meet minimum age and service requirements. Each plan has a thrift and 401(k) savings section allowing employees to contribute up to 75% of pay on a pretax and/or after-tax basis, with employer matching contributions equal to 60% of the first 6% contributed by the employee on a pretax basis.

A base contribution retirement section was added and the plan name changed from Thrift and 401(k) Savings to Retirement Savings, effective January 1, 2008, for the salaried plan and November 1, 2008, for the bargaining plan. The base contribution account is funded by employer contributions based on graduated percentages of pay, depending on the employee's age.

The Company's expense under these plans was $4,749, $5,124, and $5,087 for the years ended December 31, 2019, 2018 and 2017, respectively.

(c) *Deferred Compensation Plan*

Big Rivers sponsors a nonqualified deferred compensation plan for its eligible employees who are members of a select group of management or highly compensated employees. The purpose of the plan is to allow participants to receive contributions or make deferrals that they could not receive or make under the salaried employees qualified defined-contribution retirement savings plan (formerly, the thrift and 401(k) savings plan) as a result of nondiscrimination rules and other limitations applicable to the qualified plan under the Internal Revenue Code. The nonqualified plan also allows a participant to defer a percentage of his or her pay on a pretax basis.

The nonqualified deferred compensation plan is unfunded, but the Company has chosen to finance its obligations under the plan, including any employee deferrals, through a rabbi trust. The trust assets remain a part of the Company's general assets, subject to the claims of its creditors. The employer contribution for December 31, 2019 and 2018 was $156 and $136, respectively, and the deferred compensation expense for December 31, 2019, 2018, and 2017 was $248, $136, and $103, respectively. As of December 31, 2019, the trust asset was $895 and the deferred liability was $895.

(Dollars in thousands)

(8) Restricted Investments

The amortized costs and fair values (Level 1 measurement) of Big Rivers' restricted investments held for Member rate mitigation at December 31, 2019 and 2018 were as follows:

	2019		2018	
	Amortized costs	Fair values	Amortized costs	Fair values
Debt securities:				
U.S. Treasury – Money Market	$ 1,391	1,391	691	691
Total	$ 1,391	1,391	691	691

There were no gross unrealized gains or losses on restricted investments at December 31, 2019 and 2018.

	2019		2018	
	Gains	Losses	Gains	Losses
Debt securities:				
U.S. Treasury – Money Market	$ —	—	—	—
Total	$ —	—	—	—

Debt securities at December 31, 2019 and 2018 mature, according to their contractual terms, as follows (actual maturities may differ due to call or prepayment rights):

	2019		2018	
	Amortized costs	Fair values	Amortized costs	Fair values
In one year or less	$ 1,391	1,391	691	691
Total	$ 1,391	1,391	691	691

(Dollars in thousands)

Gross unrealized losses on investments and the fair values of the related securities, aggregated by investment category and length of time that individual securities have been in a continuous unrealized loss position at December 31, 2019 and 2018 were as follows:

	2019		2018	
	Less than 12 months		Less than 12 months	
	Losses	Fair values	Losses	Fair values
Debt securities:				
U.S. Treasury – Money Market	$ —	1,391	—	691
Total	$ —	1,391	—	691

None of the Company’s restricted investments held for Member rate mitigation were in an unrealized loss position as of December 31, 2019 or 2018.

In conjunction with the CFC $302,000 secured term loan (Note 4), Big Rivers was required to invest in CFC CTCs equal to 14.29% of the Refinance Note. Proceeds of the Equity Note were used to purchase the investments in CTCs as required under the loan agreement. The interest rate on the CTCs is fixed at 4.28% and is equal to 80% of the Equity Note rate of 5.35%. The CTCs cannot be traded in the market, and therefore, they do not have readily determinable fair values and are accounted for at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer.. The Company’s investment in these CTCs at December 31, 2019 and 2018 was $31,609 and $33,416, respectively.

(9) Short-Term Investments

At December 31, 2019, the Company’s short-term investments included $5,022 of investments in debt securities and $4,415 of investments in certificates of deposits (CDs), which are both included in the Company’s balance sheet at amortized cost. At December 31, 2018, the Company’s short-term investments included $4,987 of investments in debt securities and $4,620 of investments in CDs, which are both included in the Company’s balance sheet at amortized cost. The investments in debt securities are classified as held-to-maturity, based on management’s intent and ability to hold them to maturity. Both CDs and investments in debt securities are included in “Cash and Cash Equivalents” (if the orginal maturity date is less than or equal to three months) or “Short-term-Iinvestments” (if the original maturity date is greater than three months but less than one year).

(Dollars in thousands)

The amortized costs and fair values (Level 1 measurement) of Big Rivers' short-term investments at December 31, 2019 and 2018, were as follows:

	2019		2018	
	Amortized costs	Fair values	Amortized costs	Fair values
Debt securities:				
Corporate notes	$ 1,223	1,226	1,215	1,219
U.S. Treasuries	3,799	3,812	3,390	3,408
U.S. Government agency	—	—	382	384
Total debt securities	5,022	5,038	4,987	5,011
Other:				
Certificates of deposit	4,415	4,423	4,620	4,615
Total short-term investments	$ 9,437	9,461	9,607	9,626

Gross unrealized gains and losses on short-term investments at December 31, 2019 and 2018, were as follows:

	2019		2018	
	Gains	Losses	Gains	Losses
Debt securities:				
Corporate notes	$ 3	—	4	—
U.S. Treasuries	13	—	18	—
U.S. government agency	—	—	2	—
Total debt securities	16	—	24	—
Other:				
Certificates of deposit	8	—	—	(5)
Total short-term investments	$ 24	—	24	(5)

(10) Fair Value of Other Financial Instruments

FASB ASC 820 defines fair value, establishes a framework for measuring fair value and expands disclosures about fair value measures. It applies under other accounting standards that require or permit fair value measurements and does not require any new fair value measurements.

The carrying value of accounts receivable and accounts payable approximate fair value due to their short maturity. At December 31, 2019 and 2018, the Company's cash and cash equivalents included short-term investments in an institutional U.S. government money market portfolio account classified as trading securities under ASC 320, *Investments – Debt and Equity Securities*, that were recorded at fair value which was determined using quoted market prices for identical assets without regard to valuation adjustment or block discount (a Level 1 measure), as follows:

(Dollars in thousands)

		2019	2018
Institutional U.S. government money market portfolio	$	28,744	35,606

It was not practical to estimate the fair value of patronage capital included within other deposits and investments due to these being untraded companies.

Big Rivers' long-term debt at December 31, 2019, consisted of CFC notes totaling $246,941, a CoBank note in the amount of $171,442, an RUS note totaling $195,027, RUS guaranteed FFB loans totaling $43,064, and fixed-rate pollution control bonds in the amount of $83,300 (Note 4). The CFC, CoBank, RUS and FFB debt cannot be traded in the market, and therefore, a value other than their outstanding principal amounts cannot be determined. At December 31, 2019, the fair value of Big Rivers' fixed-rate Series 2010A Bonds, was determined based on quoted prices available for the most recent trades of those bonds occurring in the dealer market on or near the balance sheet date (Level 1 measure) and totaled $84,341.

(11) Postretirement Benefits Other than Pensions

Big Rivers provides certain postretirement medical benefits for retired employees and their spouses. Generally, except for generation bargaining retirees, Big Rivers pays 85% of the premium cost for all retirees age 62 to 65. The Company pays 25% of the premium cost for spouses age 55 to 61. Beginning at age 65, the Company pays 25% of the premium cost if the retiree is enrolled in Medicare Part B. For each generation bargaining retiree, Big Rivers establishes a retiree medical account at retirement equal to $1.25 per year of service up to 30 years. The account balance is credited with interest based on the 10-year treasury rate subject to a minimum of 4% and a maximum of 7%. The account is to be used for the sole purpose of paying the premium cost for the retiree and spouse.

The discount rates used in computing the postretirement benefit obligation and net periodic benefit cost were as follows:

	2019	2018	2017
Discount rate – projected benefit obligation	3.34%	4.34%	3.66%
Discount rate – net periodic benefit cost	4.34	3.66	4.21

(Dollars in thousands)

The healthcare cost trend rate assumptions as of December 31, 2019 and 2018 were as follows:

	2019	2018
Initial trend rate	5.98%	6.24%
Ultimate trend rate	4.50	4.50
Year ultimate trend is reached	2038	2038

A one-percentage-point change in assumed healthcare cost trend rates would have the following effects:

		2019	2018
One-percentage-point decrease:			
Effect on total service and interest cost components	$	(113)	(136)
Effect on year-end benefit obligation		(1,321)	(1,265)
One-percentage-point increase:			
Effect on total service and interest cost components	$	143	175
Effect on year-end benefit obligation		1,654	1,553

A reconciliation of the Company's benefit obligations of its postretirement plan at December 31, 2019 and 2018 is as follows:

		2019	2018
Benefit obligation – beginning of period	$	13,892	14,348
Service cost – benefits earned during the period		447	551
Interest cost on projected benefit obligation		544	530
Participant contributions		369	288
Plan amendments		227	—
Plan curtailments		98	—
Special termination benefits		204	—
Benefits paid		(1,829)	(1,412)
Actuarial loss (gain)		722	(413)
Benefit obligation – end of period	$	14,674	13,892

(Dollars in thousands)

Big Rivers revised the eligibility requirements for postretirement medical with regard to age and service. Beginning January 1, 2013, eligibility for retirement is age 62 with 10 years of service. The service requirement is waived for active employees on December 31, 2012 who will not have 10 years of service at age 62. A reconciliation of the Company's postretirement plan assets at December 31, 2019 and 2018 is as follows:

		2019	2018
Fair value of plan assets – beginning of period	$	—	—
Employer contributions		1,460	1,124
Participant contributions		369	288
Benefits paid		(1,829)	(1,412)
Fair value of plan assets – end of period	$	—	—

The funded status of the Company's postretirement plan at December 31, 2019 and 2018 is as follows:

		2019	2018
Benefit obligation – end of period	$	(14,674)	(13,892)
Fair value of plan assets – end of period		—	—
Funded status	$	(14,674)	(13,892)

The components of net periodic postretirement benefit costs for the years ended December 31, 2019, 2018, and 2017 were as follows:

		2019	2018	2017
Service cost	$	447	551	475
Interest cost		544	530	551
Amortization of prior service cost		(138)	(138)	(138)
Amortization of gain		(198)	(30)	(170)
Curtailment recognized		(49)	—	—
Special termination benefits		204	—	—
Net periodic benefit cost	$	810	913	718

(Dollars in thousands)

A reconciliation of the postretirement plan amounts in accumulated other comprehensive income at December 31, 2019 and 2018 is as follows:

		2019	2018
Prior service credit	$	605	1,018
Unamortized actuarial gain		1,963	2,981
Accumulated other comprehensive income	$	2,568	3,999

In 2020, $112 of prior service cost and $37 of actuarial gain is expected to be amortized to periodic benefit cost.

The recognized adjustments to other comprehensive income (loss) at December 31, 2019 and 2018 are as follows:

		2019	2018
Prior service cost	$	(414)	(138)
Unamortized actuarial gain (loss)		(820)	413
Amortization of net gain		(198)	(30)
Other comprehensive income/(loss)	$	(1,432)	245

At December 31, 2019 and 2018, amounts recognized in the balance sheets were as follows:

		2019	2018
Accounts payable	$	(1,445)	(1,151)
Deferred credits and other		(13,229)	(12,741)
Net amount recognized	$	(14,674)	(13,892)

(Dollars in thousands)

Expected retiree benefit payments projected to be required during the years following 2019 are as follows:

		Amount
Year:		
2020	$	1,445
2021		1,281
2022		1,169
2023		1,042
2024		944
Thereafter		4,292
Total	$	10,173

In addition to the postretirement plan discussed above, Big Rivers has another postretirement benefit plan, which vests a portion of accrued sick leave benefits to salaried employees upon retirement or death. To the extent an employee's sick leave hour balance exceeds 480 hours, such excess hours are paid at 20% of the employee's base hourly rate at the time of retirement or death. The accumulated obligation recorded for the postretirement sick leave benefit is $676 and $682 at December 31, 2019 and 2018, respectively. The postretirement expense recorded was $61, $72, and $83, for 2019, 2018, and 2017, respectively, and the benefits paid were $67, $21, and $5 for 2019, 2018, and 2017, respectively.

(12) Related Parties

For the years ended December 31, 2019, 2018, and 2017, Big Rivers had tariff sales to its members of $256,280, $263,792, and $248,389, respectively. In addition, for the years ended December 31, 2019, 2018, and 2017, Big Rivers had certain sales to Kenergy for the Domtar Paper Co. load of $4,182, $3,833, and $2,336, respectively.

At December 31, 2019 and 2018, Big Rivers had accounts receivable from its members of $20,903 and $21,826, respectively.

(13) Commitments and Contingencies

Big Rivers is involved in ongoing litigation with the City of Henderson and the City of Henderson Utility Commission doing business as Henderson Municipal Power and Light (collectively, "HMP&L") in which Big Rivers is seeking damages from HMP&L relating to HMP&L's refusal to pay the costs associated with Excess Henderson Energy produced at Station Two. In December 2017, Big Rivers and HMP&L entered into an agreement to settle all claims relating to Excess Henderson Energy. Under the settlement agreement, HMP&L agreed to be responsible for all costs related to Excess Henderson Energy generated after the effective date of the settlement agreement. Big Rivers has filed a claim against HMP&L for those costs, and HMP&L has filed a counterclaim alleging that if HMP&L is required to pay the costs of the Excess Henderson Energy, it is entitled to an offset for the revenues related to that energy. Big Rivers does not dispute that HMP&L is entitled to the Excess Henderson Energy-related revenues if it pays the costs of that energy.

On May 1, 2018, the contracts under which Big Rivers was operating Station Two terminated as a result of the Station Two units no longer being capable of the economically competitive production of electricity (Note 5). To allow HMP&L time to make alternate arrangements for its power supply, Big Rivers continued to operate the units under the terms of the Station Two contracts until the units were retired on January 31, 2019. The termination of the Station Two contracts has given rise to disputes between the parties, including a declaratory judgment action HMP&L has filed relating to the interpretation of the deed to the real estate on which the Station Two units were constructed, a claim HMP&L has filed seeking amounts HMP&L claims it is owed as a result of the annual budget settlement process that occurred during the term of the Station Two contracts, and a proceeding Big Rivers filed with the KPSC to resolve all outstanding disputes between it and HMP&L. The Company believes there will be no material adverse effect to its financial statements when the litigation and disputes with HMP&L are resolved.

Big Rivers is involved in other litigation arising in the normal course of business. While the results of such litigation cannot be predicted with certainty, management, based upon advice of counsel, believes that the final outcome will not have a material adverse effect on the financial statements.

(14) Subsequent Events

See Note 4(d) relating to the pollution control bonds.

See Note 4(h) relating to the amendment and extension of the line of credit.

See Note 5 relating to Case No. 2020-00064, *Application of Big Rivers Electric Corporation for Approval to Modify its MRSM Tariff, Cease Deferring Depreciation Expenses, Establish Regulatory Assets, Amortize Regulatory Assets, and Other Appropriate Relief*, which Big Rivers anticipates will begin in part in December 2020 and in full beginning January 2021, filed with the KPSC on February 28, 2020.

In March 2020, the World Health Organization declared the novel strain of the coronavirus (COVID-19) a global pandemic and recommended containment and mitigation measures worldwide. As of the date of this filing, the Company does not expect the COVID-19 disruption to materially impact its 2020 results of operations or financial position. However, the Company cannot reasonably estimate the overall length or severity of this pandemic, or the extent to which a prolonged disruption may impact the Company’s financial position or results of operations beyond 2020.

Management evaluated subsequent events up to and including April 15, 2020, the date the financial statements were available to be issued.

BIG RIVERS BOARD OF DIRECTORS, LEADERSHIP TEAM, AND MEMBER-OWNERS

BOARD OF DIRECTORS

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SENIOR LEADERSHIP TEAM

ROBERT BERRY, PRESIDENT AND CHIEF EXECUTIVE OFFICER **PAULA MITCHELL AND AMANDA JACKSON,** EXECUTIVE ASSISTANT **PAUL SMITH,** CHIEF FINANCIAL OFFICER **MIKE CHAMBLISS,** VP SYSTEM OPERATIONS **MIKE PULLEN,** VP PRODUCTION **MARK EACRET,** VP ENERGY SERVICES **LINDSAY DURBIN,** VP HUMAN RESOURCES **JENNIFER KEACH,** DIRECTOR COMMUNICATIONS AND COMMUNITY RELATIONS **SHARLA WELLS,** DIRECTOR LEGISLATIVE AFFAIRS AND GOVERNMENTAL RELATIONS

MEMBER-OWNERS

JACKSON PURCHASE ENERGY CORPORATION

GREG GRISSOM, PRESIDENT AND CEO

SERVES: BALLARD, CARLISLE, GRAVES, LIVINGSTON, MARSHALL AND MCCRACKEN COUNTIES

HEADQUARTERED: PADUCAH, KENTUCKY

NUMBER OF ACCOUNTS: 30,057

MILES OF LINES: 2,964

KENERGY CORP

JEFFREY HOHN, PRESIDENT AND CEO

SERVES: BRECKINRIDGE, CALDWELL, CRITTENDEN, DAVIESS, HANCOCK, HENDERSON, HOPKINS, LIVINGSTON, LYON, MCLEAN, MUHLENBERG, OHIO, UNION AND WEBSTER COUNTIES

HEADQUARTERED: HENDERSON, KENTUCKY

NUMBER OF ACCOUNTS: 58,104

MILES OF LINES: 7,178

MEADE COUNTY RURAL ELECTRIC COOPERATIVE CORPORATION

MARTIN LITTREL, PRESIDENT AND CEO

SERVES: BRECKINRIDGE, GRAYSON, HANCOCK, HARDIN, MEADE AND OHIO COUNTIES

HEADQUARTERED: BRANDENBURG, KENTUCKY

NUMBER OF ACCOUNTS: 29,905

MILES OF LINES: 3,242

Big Rivers Electric Corporation
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www.bigrivers.com

AARON LEACH DEBBIE LIGON ZACH LILES TOM LILLY LESLIE LOVAN CHRISTA LUCAS DWIGHT LUCAS MIKE MADDOX GEORGE MARSHALL JEREMY MARTIN CHAD MARVEL BRIAN MATTINGLY CHRIS MATTINGLY RON MATTINGLY TOM MATTINGLY ALLEN MAYFIELD KEVIN MAYFIELD MARK MCADAMS STEPHANIE MCCOMBS HOWIE MCCORMICK JENNIFER MCCORMICK MARK MCDOLE ANDY MCINTYRE ERIC MCLEAN DAVE MEDLEY JOHNNY MEFFORD DIANA MERRITT JACOB MESSER STEVE MICHAEL GRANT MILES JIM MILLER ADAM MILLS DEREK MILLS WAYNE MILLS TOM MOODY CHRIS MOORE NICK MOORMAN DAVID MORGAN BOB MOSS BRUCE MURPHY DONNA NALLY JEFF NEWMAN MELISSA NICHOLS DANNY O'NAN REECE O'NAN RYAN O'NAN BRANDON OSBORNE TYLER OVERFIELD JUSTIN OWEN NANCY OWEN RICHIE PARKER RICHARD PARKER JOY PARSLEY MARLENE PARSLEY JERRY PATTERSON CHASE PAYNE CHRIS PAYNE VICKY PAYNE JEFF PAYNE SEAN PEARSON KERRY PENCE MIKE PENCE JOHN PFEIFFER BEAU PHILLIPS CHAD PHILLIPS GREG PHILLIPS JIMMIE PIPER RUSS POGUE JERRY POILES JEFF POLIVICK TROY POLLARD DARRYL PRATHER NATHAN PRUITT MIKE PULLEN BRENT PULLIAM PHILLIP PURYEAR DALE RECTOR JEFF REYNOLDS STEVE RICHMOND HUNTER RICKARD CHAD RIDEOUT JR RIES KATIE RISLEY STEVE RITTMEYER BOBBI ROBB CINDY ROYBAL MIKE ROYBAL JANA RUSSELBURG TERESA SALLEE TY SALSMAN GEORGE SCHADLER ERIC SCHMIDT MICHAEL SCHULZ JULIE SCOTT KEITH SCOTT MIKE SCOTT SUE SCOTT BOBBY SHAW TOM SHAW LYNDON SHEARN BRUCE SHELTON CHARLIE SHELTON DON SHELTON JOE SHELTON SONNY SHELTON STACY SHELTON DON SIMPSON DOUG SIMPSON JOE SIPES DARRIN SMITH DEREK SMITH JIM SMITH PAUL SMITH SUSAN SMITH TRAVIS SNEED JAMES SNELLING SALLY SNYDER DEANNA SPEED DAVID STALLINGS STEVE STEARSMAN MARK STERLING NATHAN STIFF SAM STILLEY HEATH STONE JENNIFER STONE MEREDITH STONE DAWN STORCKMAN DANNY STOVALL TROY STOVALL JOSH STOVER PHIL STRATMAN JARET STRICKLAND DEBBIE STROUSE DAVID SUGG BLAKE SWEENEY CHARLIE SWEENEY JERRAME SWIFT KINSEL SWIHART DARRELL TALLEY SCOTT TAPP TIM TAPP JEREMY TATE JOHN TAUL TERESA TAYLOR BRANDON TEAGUE JERROD THOMAS MIKE THOMAS BRIAN THOMAS STEVE THOMAS KYLE THOMPSON ROBERT THORNTON BARRY TICHENOR GARY TIVITT HEATHER TODD ROB TOERNE BILLY TRAVIS DAVID TRAVIS MICHELLE TROVATO CHUCK TUCKER CHUCK TURNER ELIZABETH TUTOR JEFF VANDIVER STEVE VOLLE JAMES WADLINGTON DEWAYNE WALTRIP DESSI WAPLE CHRIS WARREN BOB WARREN JIM WEDDING SHARLA WELLS KEVIN WEST TIM WEST DARYL WHEAT JASON WHITLEDGE JEREMY WHITLEDGE ERIC WILLIS BRUCE WILLIS JERRY WILSON DONNA WINDHAUS RON WOLFE DANNY WOODARD JOHN WOODCOCK JOSH WOODS TIM WOODS DONNIE WORKINS MIKE WORKINS JUSTIN WRIGHT KENNY WRIGHT DEBBIE YATES ALLEN YOUNG KYLE YOUNG

BIG RIVERS ELECTRIC CORPORATION

ELECTRONIC APPLICATION OF
BIG RIVERS ELECTRIC CORPORATION
FOR APPROVAL OF SOLAR POWER CONTRACTS
CASE NO. 2020-00183

Response to the Office of the Attorney General's
First Request for Information
dated August 6, 2020

August 14, 2020

Item 32) ***Refer to the Application generally. Explain if any existing or prospective large industrial customer has expressed any interest in having any portion or all of its load served through renewable resources.***

Response) None of Big Rivers' existing large industrial customers have expressed any interest in having a portion or all of its load served through renewable resources. Please see Big Rivers' responses to Item 4b of the Attorney General First Request for Information in this case and to Item 3a of Commission Staff's Initial request for Information in this case for information on prospective large industrial customers expressing any interest in having any portion of their load served through renewable resources.

Note that Big Rivers did not enter into the solar agreements for the sole purpose of providing renewable energy to any of its Member-Owners or any of their retail customers except for Nucor. Integrating solar energy into Nucor's long-term supply provided economic value and price stability and was a large part of securing a $1.35 billion dollar investment in the Commonwealth of Kentucky. For the same reason, Big Rivers expanded its solar purchases to provide some of that same value to its Member-Owners and their remaining retail customers. As calculated in *Revised* Exhibit Eacret-15 to my testimony, the present value of that benefit is between [redacted].

Witness) Mark J. Eacret

Item 33) ***Refer to the Application generally. Provide the current economic order of dispatch of BREC's generating units. Explain where the solar resources will fall within that order.***

Response) Currently Big Rivers' SEPA allocation would be first, because Big Rivers is required to schedule at least four hours around the projected MISO peak demand each day. Big Rivers would then schedule SEPA in any other hours to maximize our energy revenue over the SEPA year, given our SEPA energy availability.

The economic order of dispatch of the remaining units would be Wilson, Green Unit 1, Green Unit 2, and the Reid combustion turbine, based upon their variable operating cost.

Once the solar resources come online they would become first in that order, because Big Rivers receives all of the energy that the facilities produce.

It is important to note two critical issues around economic dispatch. First, Big Rivers' generating resources are dispatched in the MISO market, not dispatched against a specific load. Therefore, all price–competitive Big Rivers units will run, regardless of their position in the economic dispatch order and regardless of Big

Rivers' load. Second, once Nucor is operating, total Big Rivers load will be about [redacted] MWh annually. Big Rivers is entitled to 267,000 MWh under its SEPA allocation and the solar facilities are projected to produce about [redacted] in their first year of operation. That leaves approximately [redacted] of Big Rivers' annual energy needs that will be supplied by Big Rivers' coal-fired generating resources or the market. Big Rivers' SEPA allocation, the solar contracts, and the Reid combustion turbine complement Big Rivers' baseload coal assets.

Witness) Mark J. Eacret

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Item 34) ***Refer to the Application generally. Explain whether any of the three contracts would require BREC or the solar developers to construct any interconnections on transmission systems not owned by BREC. If so, explain what party will pay those costs, and explain further whether such costs were taken into consideration in BREC's least cost analysis.***

Response) None of the three contracts will require any interconnections on transmission systems not owned by Big Rivers.

Witness) Mark J. Eacret

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Item 35) ***Refer to the Application generally. Explain whether BREC would have to construct any transmission upgrades or improvements as a result of entering into the contracts. If so: (i) provide all cost estimates; and (ii) explain whether such costs were taken into consideration in developing BREC's least cost analysis.***

Response) Community Energy Solar bears the risk of any network upgrade costs required for the Meade or McCracken solar facilities to interconnect. As a result of the Geronimo / Henderson Solar contract, Big Rivers will only be required to construct any transmission upgrades or improvements that might be identified by MISO as required network upgrades. Under the Geronimo / Henderson Solar contract, Big Rivers and Geronimo are each responsible for 50% of any network upgrade costs up to $10 million dollars. Either party may terminate the agreement if the upgrade costs rise above that level. Big Rivers estimates the network upgrade costs to be less than $1 million dollars. Please see Big Rivers' response to Item 23 of the Attorney General's First Request for Information in this case. Those costs were included in Big Rivers' economic analysis calculations. See *Revised* Exhibit Eacret-15 attached to the response to Item 25 of the Commission's Initial Request for Information in this case.

Witness) Mark J. Eacret

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Item 36) ***Refer to the Application generally. Explain whether BREC will incur any transmission charges and/or costs as a result of entering the proposed contracts. If so: (i) provide all estimates of such charges and/or costs; and (ii) explain whether such charges and/or costs were taken into consideration in developing BREC's least cost analysis.***

Response) Big Rivers will not incur any incremental transmission charges or costs as a result of entering into the proposed solar contracts.

Witness) Mark J. Eacret

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Item 37) ***Refer to the Application generally.***

a. Identify any backup power resources BREC intends to utilize to address the issue of intermittency arising from the use of solar power. For each such resource so identified, provide any and all applicable cost estimates, whether for purchase power agreements, self-build options, etc.

b. Explain whether the process BREC undertook to determine the least cost for the solar resources also considered: (i) the cost of any such backup power resources, and if not, why not; and (ii) any applicable transmission costs, both for the proposed solar contracts and any potential back up power sources, and if not, why not.

c. Provide all workpapers associated with analyzing, reviewing, and determining the costs identified in subpart b. of this question.

Response)

a. No backup power resources will be utilized.

b. Big Rivers will treat the energy produced by the solar facilities as economic as-available energy. Therefore, no backup power resource is required.

c. No workpapers were required or produced.

Witness) Mark J. Eacret

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Item 38) ***Refer to the Application generally. Confirm that BREC retains all Renewable Energy Credits (RECs) under all three solar contracts.***

Response) Big Rivers is entitled to all Renewable Energy Certificates created under all three solar contracts.

Witness) Mark J. Eacret

Item 39) ***Refer to the Application generally.***

a. Provide all estimates of the projected revenues BREC is expected to receive from RECs, ancillary services and/or any potential carbon credits.

b. Provide a discussion regarding the potential for the development of a carbon credit market in the Midwest, in particular within the Midcontinent Independent System Operator (MISO) footprint.

Response).

a. Please see the *Revised* Exhibit Eacret–15 to my direct testimony provided with Big Rivers' response to Item 25 of the Commission Staff's Initial Request for Information for the estimates of REC values assuming two different REC forward price curves. Big Rivers did not assume any value from ancillary services or carbon credits in our base economic analysis. Also, please see Big Rivers' response to Item 21b of the Commission Staff's Initial Request for Information in this case for a discussion of ancillary services. Carbon credits were assumed in a scenario for the least cost resource analysis.

b. Please see the excerpt from an April 2, 2019, New York Times article provided in Big Rivers' response to Item 10e of the Attorney General's First Request for Information in this case.

The "Green New Deal," which is supported by many Democratic candidates in the 2020 elections, does not explicitly oppose carbon taxes, but proponents do not think that carbon pricing schemes go far enough. A spokesman for the Sunrise Movement quoted in *Inside Climate News* said,

> The door is not closed to cap and trade and carbon taxes, and all that stuff. The important thing is that carbon taxes are simply not enough. What is needed to avert the climate crisis is a massive restructuring and mobilization—an overhaul of our economy and society the likes of which has not been seen since World War II.

The link for this article can be found in Big Rivers' response to Item 10e of the Attorney General's First Request for Information in this case.

Witness) Mark J. Eacret

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Item 40) ***Refer to the Application generally. Provide a discussion of how the additional revenues received under each of the three contracts will be accounted for in light of the Commission's Final Order dated June 25, 2020, in Case No. 2020-00064.***

Response) As discussed in the Direct Testimony of Mark J. Eacret, the value of the solar revenue (demand and energy) will exceed the cost of the purchased power. In accordance with the New TIER Credit, which the Commission approved in Case No. 2020-00064,[1] the improved net margins resulting from the solar contracts will result in increased amortization of the regulatory assets as well as increased bill credits provided to Big Rivers' Members through Big Rivers' MRSM tariff.

Witness) Paul G. Smith

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[1] See *In the Matter of: Electronic Application of Big Rivers Electric Corporation for Approval to Modify its MRSM Tariff, Cease Deferring Depreciation Expenses, Establish Regulatory Assets, Amortize Regulatory Assets, and Other Appropriate Relief* – Case No. 2020-00064. Application filed February 28, 2020.

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Item 41) ***Refer to the Application generally. Explain the accounting treatment BREC will provide with regard to the RECs.***

Response) The sale of the RECs will produce additional gross margins, which will enhance net margins. In accordance with the New TIER Credit approved in Case No. 2020-00064,[1] the improved net margins resulting from the sale of the RECs will result in increased amortization of the regulatory assets (with Commission approval) as well as increased bill credits provided to Big Rivers' Members via Big Rivers' MRSM tariff.

Witness) Paul G. Smith

[1] See *In the Matter of: Electronic Application of Big Rivers Electric Corporation for Approval to Modify its MRSM Tariff, Cease Deferring Depreciation Expenses, Establish Regulatory Assets, Amortize Regulatory Assets, and Other Appropriate Relief* – Case No. 2020-00064. Application filed February 28, 2020.

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Item 42) ***Refer to the Application generally. Explain whether entering into the proposed solar contracts will cause BREC to incur any additional MISO charges, or MISO revenues. If so, provide any applicable estimates.***

Response) Big Rivers will receive MISO day-ahead energy revenues with a present value of about [redacted], per *Revised* Exhibit Eacret–15 provided in response to Item 25 of Commission Staff's Initial Request for Information in this case. Big Rivers will incur MISO market fees of less than [redacted] for administrative and other minor charges. That would amount to a present value of about [redacted] over the life of the solar contracts.

Witness) Mark J. Eacret

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Item 43) ***Explain whether the basic terms of all three solar contracts are substantially similar. If not, identify all material differences between the solar contracts.***

Response) The contracts are substantially similar, but there are a few key differences. Please see Big Rivers' responses to Item 10a and Item 10-b for information on the differences in capacity and output. Other differences include:

Price – The Meade County Solar and McCracken County Solar contracts are priced at [redacted] and Big Rivers is responsible for interconnection costs between $300 thousand dollars and $1 million dollars. The Henderson Solar contract is priced at [redacted] and Big Rivers is responsible for 50% of any network upgrade costs up to $10 million dollars.

Commercial Operation Date ("COD") – The CES projects assume a COD of [redacted]. The Henderson Solar project assumes a COD of [redacted].

Location - The CES projects provide utility scale project pricing over two smaller sites, in Meade County, Kentucky and in McCracken, County Kentucky. The benefits of this approach are discussed on page 12, line 2 of my testimony. The Geronimo, Henderson Solar facility is on one large site on the Henderson/Webster County line.

Interconnection – The two CES projects will interconnect at a sub-transmission level. The benefits of this approach are discussed on page12, line 2 of my testimony. The Geronimo project will connect directly to a to the Big Rivers' Reid substation.[1]

Witness) Mark J. Eacret

[1] See *In the Matter of: Electronic Application of Unbridled Solar, LLC For Certificate of Construction of an Approximately 160 Megawatt Merchant Electric Solar Generating facility and Nonregulated Electric Transmission Line in Henderson and Webster Counties, Kentucky*, K.P.S.C. Case No. 2020-00242.