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)

				Other equities		
		Total equities	Retained margin	Donated capital and memberships	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		(1,269)	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.

(Continued)

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

(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.

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)

(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.

(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

(Continued)

(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 hold-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)

(Continued)

(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.