

CREDIT OPINION

13 November 2019

Update

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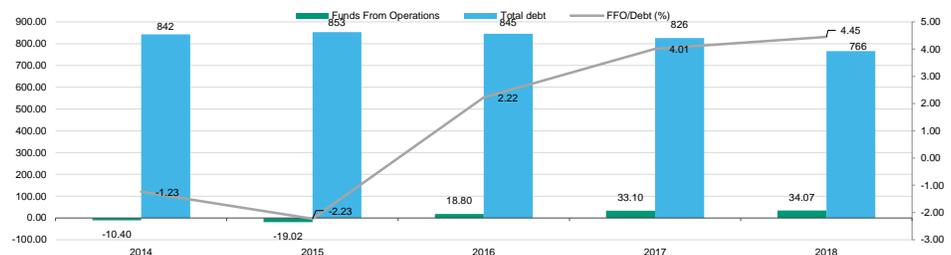
Big Rivers Electric Corporation

Update following outlook change to positive

Summary

Big Rivers Electric Corporation's (Ba1 positive) credit profile reflects improving prospects for mitigating the challenges posed by its ownership of a significant excess of mostly coal-fired generation capacity, some of which is idled, and its increasing regulatory asset balances. Big Rivers' credit profile considers the fact that it is a rate regulated electric generation and transmission cooperative as compared to its peers, but this consideration is balanced by a series of credit supportive decisions from the Kentucky Public Service Commission (KPSC) which has underpinned its strengthened financial metrics for 2016-18. Big Rivers' credit profile benefits from the ability to secure steadily increasing replacement loads following the termination of contracts with two aluminum smelters, including contracts that will continue to be phased in through 2022. Additionally, the cooperative is undertaking strategies to mitigate future refinancing risk relating to two long-term debt issues with bullet maturities due in 2023 and 2031 and to seek assurances for cost recovery relating to its increasing regulatory assets in a rate neutral manner through regulatory filings with the KPSC.

Exhibit 1
Historical FFO, Total Debt and FFO to Total Debt
(\$ in millions)



Source: Moody's Financial Metrics

Credit Strengths

- » Contracted sales of excess capacity are being phased in over the next several years, including sales to a prospective steel plate manufacturing plant to be built by Nucor Corporation
- » Limited new debt financing needs to support a moderate capital program, reliable net margins and no patronage capital returns to members support a strong balance sheet
- » Regulatory support for timely and substantial recovery of existing costs of service bodes well for sustaining stronger financial metrics

- » Long term wholesale power contracts with three member owners through 2043 produce a steady and predictable revenue stream from electricity sold to rural residential and other non-smelter industrial customers

Credit Challenges

- » Maintaining customer satisfaction as bill credits have expired and the full impact of increases to the members' wholesale power rate has increased retail rates for members' customers
- » Increasing regulatory assets pose potential cost recovery and write-off risks if not adequately addressed as expected through regulatory proceedings
- » Elevated carbon transition risk because of significant dependence on mostly coal-fired, carbon-emitting, owned generation capacity, including idled capacity
- » Executing strategies to address refinancing risk relating to two bullet maturities of long-term debt and sizable debt maturities beyond the term of certain existing power sales agreements with replacement loads following termination of contracts with the two aluminum smelters
- » Local economic dependence on industrial activity, including two operating aluminum smelters and the prospective steel plate manufacturing plant to be built by Nucor

Rating Outlook

The positive rating outlook reflects a prevailing credit supportive regulatory environment and Big Rivers' improving prospects for sustaining its financial metrics at the stronger levels attained during 2016-18 while continuing to achieve better than expected progress in reducing its significant excess capacity created by the lost smelters load several years ago. The positive outlook also considers the cooperative's good prospects for reducing refinancing risk and limited new debt financing needs during the next three years, and incorporates the likelihood that the smelters will continue to operate and that the Nucor load will materialize, thus providing support for the local economy, including employment levels.

Factors that Could Lead to an Upgrade

- » A rating upgrade is possible if credit supportive regulatory treatment remains intact and there is future regulatory support for cost recovery of the increasing regulatory asset account which would avoid potential future write-offs while maintaining reasonably competitive rates
- » Achieving further successful financial results through ongoing strategies to mitigate refinancing risk and to better align the cooperative's capacity supply and load profile on a sustainable basis could also contribute to upward rating pressure
- » Achieving stronger metrics to balance unique business and financial risks; for example, funds from operations (FFO) coverage of interest and debt improving to 2.4x and in a range of 6%-7%, respectively, with the debt service coverage (DSC) ratio tracking at close to 1.2x or better on a sustained basis

Factors that Could Lead to a Downgrade

- » A negative rating action is unlikely in the next two years because of the positive outlook; However, a negative rating action could result if there was a shift to a less credit supportive regulatory environment or if liquidity unexpectedly deteriorates
- » The pressure for a negative rating action would also increase if substantial and timely assurance for recovery of environmental compliance costs and increasing regulatory assets over time do not occur as expected under the KPSC approved environmental cost recovery mechanism and future KPSC regulatory proceedings

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- » A scenario under which either or both of the smelters discontinued operations or if the Nucor Corporation load does not materialize would be credit negative because of the potential residual negative effects on the local economy
- » In terms of metrics, FFO to debt and DSC ratios below 4% and 1.2x, respectively, for a sustained period would pressure the rating

Key Indicators

Exhibit 2

Big Rivers Electric Corporation Key Indicators

	2014	2015	2016	2017	2018
Times Interest Earned Ratio (TIER)	1.6x	1.3x	1.1x	1.3x	1.4x
DSC (Debt Service Coverage)	1.5x	1.2x	1.2x	1.2x	1.2x
FFO / Debt	-1.2%	-2.2%	2.2%	4.0%	4.4%
(FFO + Interest Expense) / Interest Expense	0.7x	0.5x	1.5x	1.8x	1.9x
Equity / Total Capitalization	34.9%	35.3%	36.0%	37.2%	39.6%

Source: Moody's Financial Metrics

Obligor Profile

Big Rivers is an electric generation and transmission cooperative headquartered in Henderson, Kentucky and owned by its three member system distribution cooperatives -- Jackson Purchase Energy Corporation; Kenergy Corp (Kenergy); and Meade County Rural Electric Cooperative Corporation (Meade County). These member system cooperatives provide retail electric power and energy to more than 116,000 residential, commercial, and industrial customers in 22 Western Kentucky counties.

In aggregate, Big Rivers owns 1,444 net MWs of coal-fired generating capacity at four stations, including Robert D. Green (454 MWs), Robert A. Reid ((130 MWs), D.B. Wilson (417 MWs) and Kenneth C. Coleman (443 MWs), which has been idled since May 2014. Including about 178 MWs of contracted hydro capacity from the Southeastern Power Administration (SEPA) and taking into account the decision to cease operations at the Henderson Municipal Power and Light (HMPL) Station Two plant thus eliminating its rights to about 187 MWs of coal-fired capacity from that plant, the cooperative's total power capacity is 1,622 MWs.

Big Rivers' owned transmission system includes 1,298 miles of transmission lines and 24 substations. The cooperative also has about 25 transmission interconnections to link its system with several surrounding utilities. Unlike most of its peers, Big Rivers is subject to rate regulation by the KPSC.

Detailed Credit Considerations

Good progress on mitigating credit challenges resulting from loss of aluminum smelters' load

Big Rivers has been making good progress towards replacing the roughly two-thirds of its annual energy sales from two aluminum smelters. While initial worst case expectations contemplated the prospect that both smelters would cease operations upon the expiration of their respective power contracts, regulatory approvals of the smelters' definitive agreements with Big Rivers and Kenergy enable the continued operations of both smelters with energy demands met by open market purchases of electricity. Big Rivers is addressing the long generation capacity position created by the absence of both smelters' load through both supply-side and demand-side strategies, as well as by reducing staff and controlling other expenses where feasible without compromising reliability.

Supply-side strategies taken to another level during 2018-2019

Big Rivers' supply-side initiatives included idling its 443-MW Coleman plant in May 2014 and terminating its operating agreement with HMPL during 2018, which led to the closure of the HMPL Station Two plant on January 31, 2019. The latter steps reduced the cooperative's excess capacity by eliminating its rights to about 187 MWs of competitively challenged coal-fired capacity from the HMPL Station Two plant.

The settlement agreement to end the operating agreement with HMPL, which was approved by the KPSC on an expedited basis during 2018, provides Big Rivers the ability to apply regulatory asset treatment for its approximately \$90 million of net book value relating to its past investments in the Station Two plant as part of the operating agreement. The settlement also established a times interest

earned ratio (TIER) credit, which allows Big Rivers to apply any 2019 and 2020 margins in excess of a 1.45 TIER as an initial amortization of its regulatory asset balance. It is management's intent to seek recovery of the regulatory assets in regulatory proceedings likely to be filed at the KPSC no later than early 2020.

Although the Coleman plant was idled in May 2014, it is being maintained to permit restart should market conditions become economically feasible. By idling the Coleman plant, Big Rivers achieved overall cost savings of about \$26 million annually. Big Rivers is reporting internal load growth and longer term opportunities are arising for sales of electricity, resulting from economic development activity in its service territory. For example, Big Rivers has an industrial customer utilizing the cooperative's economic development incentive rate in its business expansion, which will contribute significant growth to the cooperative's load. Also, in March 2019 Nucor Corporation (Baa1 stable) announced it plans to construct a steel plate manufacturing mill in Meade County's service territory. More recently, in September 2019 Meade County, Big Rivers and Nucor all signed a long-term power purchase agreement that will add about 200 MWs of load by 2022 to be served by Big Rivers, effectively establishing Nucor as one of Meade County's members. The Nucor plant will also provide additional economic stimulus within the service territory.

Also, Big Rivers is considering the transfer of some environmental control equipment at the Coleman plant to its Wilson plant. If this strategy is successfully implemented, it is likely to reduce the financial impact of a potential write-off or the need for regulatory asset recovery if management elects to permanently shutter the Coleman plant in the future. The current net book value of the Coleman plant, including deferred depreciation, is estimated at \$181 million. The net book value includes approximately \$73 million of investments in scrubbers. The remaining amounts of net investment in both the Coleman and Station Two plants represent potential write-off risks to Big Rivers' common equity if the cooperative is not able to recover the remaining costs from its customers as a regulatory asset.

The fact that the HMPL Station Two settlement was unanimously supported by the Attorney General (AG) and the Kentucky Industrial Utility Customers (KIUC) is a credit positive. In doing so, the AG and KIUC agreed to support recovery of Station Two and Wilson Station regulatory assets in Big Rivers' next base rate case, with the AG's support contingent on any proposed rate impact being 0% or less. Also, the KIUC has agreed to support recovery of the Coleman Station regulatory asset, while the AG indicated neither support nor opposition to such recovery.

Demand-side strategies are phasing in according to plans and are enhanced by the signing of the contract with Nucor

Big Rivers' demand-side strategies include securing medium-term contracts for the sale of capacity and energy to load serving municipal-distribution entities in Nebraska and Kentucky, making short-term off system sales and participating in the capacity markets.

In addition, the Nucor contract, which is still subject to various regulatory approvals, would add to the three nine-year contracts that the cooperative already has in place to sell capacity and energy to three Nebraska entities which will grow to about 85 MWs. Power being provided under the contract with the Nebraska entities began flowing in 2018 and is scheduled to reach full output in 2022. Also, Big Rivers has executed a 10-year contract to transmit as much as 100 MWs from its coal-fired Wilson Station to Kentucky Municipal Energy Agency (KyMEA) and sales to KyMEA began in May 2019. Also, in June 2018, the City of Owensboro awarded its full-requirements contract, approximating 180 MWs to Big Rivers, which together with other supply-side efforts, helps to further balance Big Rivers' generation capacity and load requirement. The contract with the City of Owensboro covers a term of June 2020 through December 2026 to provide the municipal utility's full annual energy requirements estimated at 825,000 megawatt hours and annual peak load of about 155 MWs, net of its 25 MWs provided through a contract with the Southeast Power Administration.

These contracts are credit positive for Big Rivers because they lock up some of its substantial excess capacity and energy with load-serving municipal-distribution entities for multiple year periods, helping the cooperative replenish the smelter load lost during 2013-14. The contracts are likely to prove beneficial for Big Rivers' long-term financial performance and provide a reliable source of recovery for Big Rivers' fixed and variable costs and contribute to its overall competitiveness through better rates for its members. Also, the contracts allow Big Rivers to become less dependent on the wholesale power market for incremental revenues and helps diversify the cooperative's revenue stream, which historically was heavily dependent on the aluminum industry, to one that is less volatile and more predictable.

Setting aside the still idled Coleman capacity and considering the effects of terminating the operating agreement with HMPL, BREC has just under 1,200 MWs of capacity and awaits the outcome of its RFP for up to 250 MWs of solar capacity. This level of capacity

compares with average member peak load of 650 MWs and when combined with additional aforementioned contracted capacity sales of about 550 MWs phasing in through 2022 and allocating about 150 MWs for an approximate 15% reserve margin, moves Big Rivers very close to achieving supply and demand balance.

Smelters continue to operate and the Hawesville smelter moves closer to operating at full capacity

Since canceling their respective contracts, both of the smelters continue to operate. We understand that the Hawesville smelter has gradually ramped up operations in recent years because of some economic aid and improved commodity pricing for aluminum and currently is operating at about 80% of its capacity with four of its five pot lines operating. Also, the Hawesville smelter is continuing work during 2019 to get the fifth pot line operational. The Sebree smelter has been operating at near full production capacity for several years. When compared to the alternative scenario of having both smelters permanently shut down, this outcome is positive particularly since Big Rivers and Kenergy are being reimbursed for any incremental costs to their members of the smelters' continued operation and there are residual benefits to the local economy.

Rate case decisions and ongoing cost recovery mechanisms remain credit positive factors

Big Rivers has approval from the US Department of Agriculture's Rural Utilities Service (RUS) for loans to be funded no later than December 2023 which would provide reimbursement for certain transmission asset investments already made and to refinance half of its Series B Note which has a \$245.5 million balloon payment due in December 2023, while it intends to repay the other half of the Series B Note with cash. Additional refinancing strategies are likely to include a reoffering of its \$83.3 million of County of Ohio, Kentucky Pollution Control Refunding Revenue Bonds (Big Rivers Electric Corporation Project) in July 2020 to achieve an estimated net present value of \$20 million interest expense savings. The pollution control bonds have a July 2020 call date.

Also, Big Rivers' credit profile benefits from credit supportive rate case decisions rendered by the KPSC in October 2013 and April 2014, which resulted in approval of a combined wholesale power rate increase of about \$90.4 million. As part of these decisions, residual cash, set aside in restricted accounts, was supportive to Big Rivers' liquidity after the loss of the smelter load. Specifically, cash in the restricted accounts was used to provide bill credits during 2014-16, which minimized the rate shock to ratepayers until September 2015 for large industrial/business (non-smelter) customers and until August 2016 for rural (residential) customers. With the expiration of bill credits in 2016, the full effects of the wholesale power rate increases are now being fully borne by Big Rivers' members and, in turn, the members' retail customers.

Overall credit positive impact from KPSC mandated independent management audit

The KPSC ordered independent consultant's comprehensive management audit is credit positive for Big Rivers since it incorporates a combination of many supportive or neutral findings about Big Rivers' past decisions and future plans, as well as five specific, seemingly manageable, recommendations. Of those five recommendations, four were already in process as of the report date, including those relating to increasing expertise regarding the MISO market, pursuing new energy sales and analyzing the best use of the currently idled Coleman plant. Three of the five action items have been closed by the KPSC, including an agreement that the recommendation of adding a new board member with energy expertise is not warranted, that Big Rivers was sufficiently pursuing new energy sales, and that Big Rivers has sufficiently added staff resources focusing on enhancing internal expertise in production cost and financial modeling to further leverage its association as a member of ACES.

The remaining two items yet to be closed by the KPSC relate to: (1) the executed amendments made to Big Rivers' debt documents to address restrictions around the sale or early retirement of the Coleman plant, and (2) completion of the study of the sale, retirement or redevelopment of the Coleman plant.

Reasonably competitive position maintained

As depicted in exhibit three below, although Big Rivers' rates have increased following the loss of the smelter loads, the economics of power produced from Big Rivers' generation sources have enabled it to still maintain a reasonable competitive position in the region.

Exhibit 3

Historical Average Member Rates

Source: Big Rivers Electric Corporation

Base rate increases from 2013 and 2014 and other strategic initiatives are driving improved financial performance and this trend is likely to be sustained

The outcomes in Big Rivers' last two rate cases and other mitigation strategies have supported steady margins for the past three fiscal years in a range of approximately \$12.9 - \$15.2 million. The net margin for fiscal year ended December 31, 2018 was \$15.2 million, representing modest improvement over the prior two years and produced a 1.39x TIER, a contractual margins for interest (MFI) ratio of 1.39x and a DSC ratio of 1.22x, all as defined in the cooperative's debt documents.

Despite mild weather and soft wholesale market pricing, Big Rivers margins for the six months ended June 30, 2019 were \$18.9 million compared to \$15.6 million in the same period of 2018, primarily reflecting the cost savings from the January 31, 2019 closure of the Station Two plant. Net margin and cash flow benefits from the Station Two plant closure are likely to continue throughout fiscal year 2019 and beyond.

For fiscal years 2016-18 (including Moody's standard adjustments), Big Rivers' FFO coverage of interest, FFO to debt and DSC ratios averaged in the "Baa", "Baa" and "A" rating categories, respectively, for the ratios covered under the Rating Methodology for U.S. Electric G&T Cooperatives. For example, Big Rivers' three year average FFO coverage of interest, FFO to Debt, and DSC for 2016-18 were 1.7x, 3.5%, and 1.2x, respectively.

Big Rivers' FFO coverage of interest and debt ratios strengthened during fiscal years 2016-18 and prospectively are likely to be sustained to support the cooperative's credit quality as power sales agreements with entities in Nebraska and Kentucky and the recent long-term contract with Nucor help compensate for the substantial overcapacity at Big Rivers.

Liquidity

We expect that Big Rivers will maintain ample liquidity over the next 12-18 months.

Big Rivers supplements its existing cash on hand and internally generated cash flow with a multi-year \$100 million syndicated senior secured credit agreement with five financial institutions, led by National Rural Utilities Cooperative Finance Corporation (NRUCFC), which expires September 18, 2020. Big Rivers plans to negotiate prior to the expiration date for either an amend and extend agreement or a new facility for at least the same amount and under similar terms and conditions for at least a three-year term.

As of June 30, 2019, Big Rivers had a cash and temporary investments balance of about \$48.8 million and \$92.3 million available under the NRUCFC credit agreement. Big Rivers is likely to have very limited need for new debt financing for the next eight quarters because of a modest capital spending program for maintenance of existing infrastructure and manageable debt maturities over the period. The debt maturities are largely comprised of scheduled amortizations of long-term debt to be paid at roughly \$8 million - \$10 million per quarter for the next eight quarters.

Terms of the NRUCFC credit agreement provide a good quality source of alternate liquidity in the form of a syndicated credit agreement. The facility does not have any onerous financial covenants, which are largely consistent with the financial covenants

in existing debt documents. The syndicated agreement does, however, separately require Big Rivers to maintain a minimum equity balance at each fiscal quarter-end and year-end of \$375 million plus 50% of the cooperative's cumulative positive net margins for each of the preceding fiscal years, beginning with the fiscal year ended December 31, 2015. Big Rivers is comfortably in compliance with those covenants. Additionally, the credit agreement benefits from no ongoing material adverse change (MAC) clause. The syndicated credit agreement does not have any rating triggers, just a pricing grid based on Big Rivers' rating.

Debt Structure

As part of the unwinding of various transactions completed in 2009, Big Rivers replaced the previously existing RUS mortgage with a senior secured indenture. Under the senior secured indenture RUS and all senior secured debt holders, including the \$83.3 million of County of Ohio, Kentucky Pollution Control Refunding Revenue Bonds (Big Rivers Electric Corporation Project; cusip number 677288AG7), are on equal footing in terms of priority of claim and lien on assets. The current senior secured indenture provides Big Rivers with the flexibility to access public debt markets without first obtaining a case specific RUS lien accommodation, while retaining the right to request approval from the RUS for additional direct borrowings under the RUS loan program, if they choose to do so. Given persistent questions about the availability of funds under the federally subsidized RUS loan program, the added flexibility of the current senior secured indenture is credit positive.

Other Considerations

Big Rivers' mapping under Moody's U.S. Electric Generation & Transmission Cooperative Rating Methodology scorecard below is based on historical data through December 31, 2018.

The scorecard-indicated outcome for Big Rivers' senior most obligations under the Methodology is currently Baa2. However, Big Rivers' actual senior secured rating of Ba1 reflects several of the unique risks at Big Rivers and the challenges facing the cooperative in mitigating these risks, including further implementation of its load mitigation strategies following the smelter contract terminations and addressing issues surrounding its increasing regulatory asset accounts and idled Coleman plant. The differential between the scorecard indicated outcome and the actual Ba1 senior secured rating is also reflected in the recent revision to a positive outlook to incorporate progress in addressing these challenges.

Methodology

Exhibit 4

Big Rivers Electric Corporation

Big Rivers Electric Corporation, KY -Private

U.S. Electric Generation & Transmission Cooperatives Industry Scorecard [1][2]	Current FY 12/31/2018	
Factor 1: Long-Term Wholesale Power Supply Contracts and Regulatory Status (20.0%)	Measure	Score
a) % Member Load Served under Regulatory Status	Ba	Ba
Factor 2: Rate Flexibility (20.0%)		
a) Board Involvement / Variable Cost Adjustment Mechanisms	Baa	Baa
b) Purchased Power / Total MWh Sales (%)	17.9%	Aa
c) New Build Exposure (% Net PP&E)	A	A
d) Potential for Rate Shock Exposure	B	B
Factor 3: Member / Owner Profile (10.0%)		
a) Residential Sales / Total Sales (%)	36.9%	Ba
b) Members' Consolidated Equity / Capitalization (%)	37.8%	Baa
Factor 4: 3-Year Average G&T Financial Metrics (40.0%)		
a) TIER (3 Year Avg)	1.3x	A
b) DSC (3 Year Avg)	1.2x	A
c) FFO / Debt (3 Year Avg)	3.5%	Baa
d) (FFO + Interest) / Interest Expense (3 Year Avg)	1.7x	Baa
e) Equity / Total Capitalization (3 Year Avg)	37.6%	Aa
Factor 5: G&T Size (10.0%)		
a) Megawatt hour sales (Millions of MWhs)	6.4	Baa
b) Net PP&E (USD Billions)	\$1.0	A
Rating:		
a) Indicated Outcome from Scorecard		Baa2
b) Actual Rating Assigned (Senior Secured)		Ba1

Moody's 12-18 Month Forward View As of Publication Date [3]	
Measure	Score
Ba	Ba
Baa	Baa
20% - 30%	A
A	A
B	B
25% - 35%	Ba
37% - 40%	Baa
1.3x - 1.5x	Aa
1.2x - 1.5x	A
4% - 7%	Baa
2x - 2.5x	A
37% - 41%	Aa
7 - 10	Baa
\$0.9	Baa
	Baa1
	Ba1

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.

[2] As of 12/31/2018; Source: Moody's Financial Metrics™

[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.

Source: Moody's Investor Service

RATINGS

BIG RIVERS ELECTRIC CORPORATION, KY

Rating: County of Ohio, Kentucky Pollution Control Refunding Revenue
Bonds (Big Rivers Electric Corporation Project; cusip number 677288AG7)

Ba1

Outlook

Positive

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