

BIG RIVERS ELECTRIC CORPORATION
REGULAR BOARD OF DIRECTORS MEETING
FEBRUARY 21, 2012

The regular meeting of the Board of Directors of Big Rivers Electric Corporation was called to order at 8 a.m., CST, on Friday, February 21, 2012, at 201 Third Street, Henderson, Kentucky 42420.

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- Mr. Bailey reported on meetings held with the smelters and the Kentucky Cabinet for Economic Development and also on the Coordinating Committee meeting held on February 16,

- [REDACTED]

- [REDACTED]

[REDACTED]

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Eric Robeson provided an environmental compliance update. In conjunction with that, Mr. Hite discussed the possible options for the environmental surcharge cost allocation and management was directed to proceed along the lines discussed and bring a final recommendation to the board in March.

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

Environmental Compliance Update

Eric Robeson

February 21, 2012



Changes since last update

- Bob Berry assumed project lead
- S&L report issued
- Increased cap ex for Wilson FGD
- Finalized MATS recommendations
- Evaluated NOx allowance option vs Green SCR
- Gave presentation to HMPL and Smelter Coordinating Committee

Internal Team Activities

- Weekly meetings/teleconferences
 - Gantt Chart
 - Financial Evaluation
 - Testimony
 - Environmental Compliance Plan (ECP), Certificate of Public Convenience and Necessity (CPCN) , and Environmental Surcharge (ES) filings



Your Touchstone Energy® Cooperative 

CSAPR Cap Ex and Cash Flow

	2012	2013	2014	2015	2016	Total
Wilson FGD	1.80	27.60	55.00	47.60	7.00	139.00
Green SCR	1.00	20.00	44.00	16.00		81.00
HMPL FGD	0.30	2.20	3.10	0.70		6.30
Reid Conv	0.05	1.15				1.20
Total	3.15	50.95	102.10	64.30	7.00	227.50

All figures in millions

MATS Cap Ex and Cash Flow

	2012	2013	2014	2015	2016	Total
Wilson		1.20	4.80	5.24		11.24
Coleman		1.20	14.40	12.84		28.44
Green		1.20	8.00	9.28		18.48
HMPL				0.48		0.48
Total		3.60	27.20	27.84		58.64

All figures in millions

Annual O&M Expenses

	2013	2014	2015	2016
CSAPR		0.76	2.23	2.92
MATS				9.07
Total		0.76	2.23	11.99

All figures in millions

Projected Rate Impacts by Year

2012	0.7%
2013	3.4%
2014	2.5%
2015	2.6%
2016	6.9%



Your TrueHome EnergySM Cooperative 

Future Environmental Issues

- **NAAQS Update**
 - Reduce SO₂ and NO_x allowances by 20%
 - Second SCR at Green Station
 - \$81 M around 2018
- **Coal Combustion Residuals**
 - Reduce ash ponds
 - SSC: Submerged Scraper Conveyors at all plants
 - \$94 M by 2018
- **316b**
 - Install rotating fish screens at Coleman and Sebree
 - \$6 M around 2016

Next Steps

- Financial Modeling Complete February 21
- Notice of Filing to PSC March 3
- Draft Testimony Complete March 3
- CPCN Document Complete March 3
- Final Recommendations to BOD March 16
- Meeting with RUS March 20
- Final Review of Testimony and Exhibits March 23
- File ECP/CPCN/ES April 2



Your Touchstone Energy® Cooperative 

Big Rivers Environmental Surcharge (ES) Rate Formula

February 21, 2012

The ES Rate Formula...

- Environmental Compliance Plan (ECP) Monthly Costs, $E(m)$, equals Return on Investment (ROI), plus Pollution Control Operating Expenses (OE) minus net proceeds from By-Product and Emission Allowance Sales (BAS), plus any (Over)/Under Recovery from the prior period
- $E(m) = ROI + OE - BAS + (Over)/Under Recovery$
- ES Factor = jurisdictional compliance costs divided by Member and Smelter kWh, kW or Adjusted Revenue

Options for ES Cost Allocation

Management Recommendation

- Total Adjusted Revenue = Rural revenue plus Surcredit, Large Industrial revenue plus Surcredit, and Smelter revenue less Smelter contractual premiums (premiums = 25 cents/MWh, Tier Adjustment Charge and Surcharge)

Other Options

- kWh = Rural kWh, Large Industrial kWh, and Smelter Base Monthly Energy kWh
- kWh/kW "Combo" = Variable cost on kWh basis as per above. Fixed cost allocated **entirely** to Members and Smelters – billing demand kW for Rural and LI, and Base Fixed Demand kW for Smelters
- Total kW and Net Adjusted Revenue (Net Adjusted Revenue = Total Adjusted Revenue less Fuel and Non-FAC PPA) based allocations are inappropriate due to significant variable cost and off-system sales

2012 ECP

- Includes Fixed O&M *and* Capital Costs
 1. Cost of capital components are a) interest, b) a 1.24 TIER thereon, c) depreciation, d) property taxes, and e) property insurance
 2. Is continued allocation of all ES costs on a kWh basis appropriate (as all costs are no longer variable)?

Allocation by kWh?

- Appropriate when the a majority of costs are variable
- 100% of existing plan costs are variable (approx. \$43.3 million in 2016)
- 2012 ECP costs are currently estimated to be 68% fixed and 32% variable (\$27.1 million fixed; \$12.8 million variable) in 2016
- Together, it's estimated that approximately 33% of all ES costs are fixed and 67% are variable
- To the extent costs are fixed, lower load factor consumers benefit with a kWh cost allocation

Calculation of 2012 ECP Cost

	CSAPR	MATS	Total
<u>Capital</u>			
Wilson	139,000,000	11,240,000	150,240,000
HMPL (Net of City)	3,850,000	280,000	4,130,000
Reid	1,200,000		1,200,000
Green	81,000,000	18,480,000	99,480,000
Coleman		28,440,000	28,440,000
	<u>225,050,000</u>	<u>58,440,000</u>	<u>283,490,000</u>
Cost of Capital	9.42%	9.42%	9.42%
Capital Cost	21,199,710	5,505,048	26,704,758
O&M Cost	3,220,000	10,010,000	13,230,000
Total Annual 2012 ECP Cost in 2016	<u>24,419,710</u>	<u>15,515,048</u>	<u>39,934,758</u>

Additional Revenue Requirement Under ES Allocation Alternatives

	Total Adj. Revenue	kWh	kWh / kW Combo
Rural	6.6%	5.5%	6.6%
Large Industrial	6.6%	6.6%	7.4%
Smelter	5.5%	5.9%	5.8%
Off-System	6.1%	6.1%	4.2%

Note: This slide depicts the estimated percent rate increase from each rate class resulting from CASPR and MATS. To the extent the off-system increment isn't realized, the non-smelter and smelter rate classes would be required to make up the shortfall.

Management Recommendation

- Total Adjusted Revenue... Rural revenue plus Surcredit, Large Industrial revenue plus Surcredit, and Smelter revenue /less Smelter contractual premiums (premiums = 25 cents/MWh, Tier Adjustment Charge and Surcharge)

Feb 2012
Adm. Mts

Strategic Plan to Mitigate Smelter Exit

Purpose

As a business, Big Rivers desires a strong working relationship with each of the Smelters and that the Smelters remain viable for the mutual benefit of the Smelters, Big Rivers, and Big Rivers' Members. Of equal importance, as a corporate citizen Big Rivers supports the present and future viability of the Smelters for the benefit of their employees, other supporting local businesses, the local community at large, and the regional economic welfare of all of western Kentucky.

The Smelter Service Agreements recognize the uncertainty in the world-wide aluminum commodity industry. That is why the contracts allow a Smelter to exit its electric service agreement on one year's notice. However, Big Rivers also recognizes that one-third of the Big Rivers system load cannot economically support the commercial viability of two large industrials that comprise the remaining two-thirds of the system load. Big Rivers' view is that the best it can do is to operate in a prudent manner at the lowest reasonable cost consistent with good utility practice, while recognizing and preparing for the possibility that one or both Smelters may one day discontinue their Kentucky operations.

This document outlines the options available to Big Rivers to mitigate the loss of one or both smelters. The document details Big Rivers' short-term and long-term options and will be updated as appropriate to reflect changing conditions. It was developed to serve as a road map to assist with decision-making given specific circumstances that exist at the time. It was also prepared in recognition that a myriad of potential circumstances may exist if, and when, a smelter closing may occur.

Big Rivers Overview

Big Rivers Electric Corporation is a member-owned, not-for-profit, generation and transmission (G&T) cooperative headquartered in Henderson, Kentucky. The company provides wholesale electric power and support services to three distribution cooperative members across 22 counties in western Kentucky. In December 2010, Big Rivers became a transmission-owning member and market participant of Midwest ISO (MISO).

Incorporated in June of 1961, the mission of Big Rivers is to safely deliver low cost, reliable wholesale power and cost-effective shared services desired by the members. Business operations revolve around seven core values: safety, integrity, excellence, member and community service, respect for the employee, teamwork, and environmental consciousness.

Generation

Big Rivers owns and operates 1,444 megawatts (MW) of generating capacity at four primarily coal-fired stations: Robert A. Reid (130 MW), Kenneth C. Coleman (443 MW), Robert D. Green (454 MW), and D.B. Wilson (417 MW). Total system power capacity is 1,824 MW, including current contractual rights to the Henderson Municipal Power and Light ("HMP&L") coal-fired Station Two (202 MW) and contracted Southeastern Power Administration ("SEPA") hydro capacity (178 MW).

Load

Big Rivers was formed to serve the needs of its member cooperatives (Members): Jackson Purchase Energy Corporation, headquartered in Paducah, KY; Kenergy Corp., headquartered in Henderson, KY; and Meade County Rural Electric Cooperative Corporation, headquartered in Brandenburg, KY. Together, the Members distribute retail electric power and provide other services to more than 114,000 homes, farms, businesses and industries.

Big Rivers also serves, through Kenergy, two aluminum smelters located in Western Kentucky. The two aluminum smelters represent a very significant portion of Big Rivers' total load. Approximately 68% of Big Rivers' energy sales are sold to the smelters. The smelters also account for approximately 57% of Big Rivers' system demand.

Aluminum Smelters

The aluminum smelter in Sebree, KY opened in 1973 under the name Anaconda. It was later purchased by ARCO. Alcan purchased the smelter in 1986 with Rio Tinto taking ownership in 2007. Through its three potlines, the Sebree plant produces approximately 196,000 metric tons of new aluminum each year. All of the potline's molten metal is transported to the casting department to produce billet and t-bar.

The aluminum smelter in Hawesville, KY began to take shape in 1968 when Southwire and National Steel Corporation agreed to build a 135,000 ton aluminum smelter. The joint venture was named National-Southwire Aluminum with smelter operations beginning in 1969. Southwire took full ownership of the Hawesville smelter in 1991. Century Aluminum purchased the smelter in 2001. Through its five potlines, the Hawesville plant produces approximately 244,000 metric tons of new aluminum each year. Markets and applications for the plant output include the electrical conductor market, remelt ingot market, and the high-purity ingot market.

While the smelters' load is significant for Big Rivers' system, their load is small relative to the overall MISO market. MISO experienced an instantaneous system-wide summer peak load of 110,032 MW on July 20th, 2011. Assuming 850 MW of load, the Smelters contributed less than 0.8% of the overall MISO peak in 2011.

Transmission Availability

Due to the potential loss of smelter load, transmission projects were completed on Big Rivers' system to ensure the power they consume could be transmitted off system should they close. These transmission construction projects were planned in two phases. Phase 1 of Big Rivers' internal transmission upgrades has been completed and will allow Big Rivers to transmit to its border all additional energy which would have been consumed by one smelter. Big Rivers has nearly completed its Phase 2 transmission projects, which will allow Big Rivers to transmit to its border all additional energy which would have been consumed by both smelters. Because the Smelter Service Agreements require one year's notice for termination, Big Rivers will be able to complete the Phase 2 transmission projects in time for them to be available if needed. Additionally, Vectren is in the process of building a 345 kV interconnection with Big Rivers as part of a MISO-approved cost sharing project which will enhance Big Rivers' ability to import/export power when completed. Big Rivers has no cost responsibilities with this project.

Assuming the loss of smelter load (850 MW), Big Rivers requested MISO to assess the transfer capability from the Big Rivers transmission zone into other MISO zones and TVA. The April, 2011 MISO study results indicated the transmission grid has a transfer capacity in excess of the 850 MW currently provided to the smelters should the smelter operations cease.

Wholesale Power Market

The average MISO Real-Time locational marginal price (LMP) during the 2011 summer season was 6.6% lower than the average price during the 2010 summer. The 2011 summer price averaged \$35.13/MWh and the 2010 summer average was \$37.63/MWh. The depressed economy, higher wind generation output and generally lower average fuel prices relative to the previous two summers, impacted the Real-Time price in the summer of 2011.

As a standard practice, Big Rivers monitors market pricing forecasts through numerous modes. Big Rivers subscribes to numerous publications, monitors the InterContinental Exchange platform, receives market intelligence from ACES Power Marketing, and solicits the assistance of outside firms who specialize in market forecasting when modeling/planning needs necessitate. In order to assist with the planning for Environmental Compliance, Pace Global was retained to provide Big Rivers with a market forecast.

Options for Mitigating Smelter Load Loss (combinations will be likely)

Numerous internal strategic planning discussions have resulted in the development of a broad range of potential solutions for the organization to mitigate the loss of smelter load. The potential solutions are very diverse and each option has a varied impact on Big Rivers' operations in the future. While the options considered are complex and have numerous variables, Big Rivers has short-term and long-term approaches for mitigating the loss of smelter load. The approaches summarize Big Rivers' overall strategy to mitigate this loss. However, Big Rivers will remain fluid in its analyses and work to ensure it has the flexibility to change course as conditions dictate and should unforeseen issues arise.

Rates

Big Rivers constantly reviews its financial position to ensure compliance with loan covenants and corporate objectives. Big Rivers considers it a priority to work to minimize rate increases to Members; however, Big Rivers has and will continue to take a proactive approach to rate design. Should Big Rivers project a revenue shortfall, under any scenario, Big Rivers will promptly petition the Kentucky Public Service Commission (PSC) for a rate increase to maintain financial viability.

Kentucky Regulations offer Big Rivers the option to file an emergency rate case should organizational needs warrant an expedited review from the PSC. While Big Rivers hopes to offset any needed rate increases to its Members by selling excess power in the wholesale market, Big Rivers is prepared to request needed increases to maintain financial viability should wholesale market conditions warrant.

Big Rivers established at the Unwind Transaction closing a \$35 million transition reserve account. The funds in this account will be available to offset any temporary reduction in cash flow that could occur if

one or both Smelters cease operations and terminate their contracts. Below is a retail rate comparison of Big Rivers' Members to other utilities in Kentucky.

Big Rivers' Members provide some of the lowest cost residential electricity in the nation.

Average Residential Rate – Kentucky December 2011		Average Residential Rate – National September 2011	
	Cents/ kWh	National Region	Cents/ kWh
Kentucky Utility			
East Kentucky Power Cooperative	11.66	Pacific Noncontiguous	30.16
AEP Kentucky Power	9.72	Middle Atlantic	16.47
Duke Energy Kentucky	8.65	New England	16.33
Louisville Gas and Electric Company	8.57	Pacific Contiguous	13.50
Kentucky Utilities Company	7.82	East North Central	12.45
<small>Source: Kentucky Public Service Commission Orders and Filings</small>		South Atlantic	11.68
		Mountain	11.03
		West North Central	10.92
		West South Central	10.91
		East South Central	10.33
<u>Big Rivers' Members</u>		Kentucky	9.53
Dec-2011 Residential Rate (excluding credits)	9.11	United States Total	12.25
Dec-2011 Residential Rate (including credits)	7.82		
		<small>Source: Energy Information Administration Table 5.6.A</small>	

Short-Term Approach

As discussed previously, Big Rivers will have adequate transmission capacity to transport all its generating capacity to its TVA interface or the MISO market should both smelters terminate service. Also, at Big Rivers' urging, the Kentucky General Assembly amended KRS 279.120 in 2006. The amendment enables a cooperative like Big Rivers that finds itself with a sudden, large drop in system load the ability to remarket that power to non-members without endangering its cooperative status under state law.

Big Rivers will market all excess power when the market price is greater than marginal generation cost. Big Rivers will idle or reduce generation when the market price does not support the cost of generating. Big Rivers' margins are presently well hedged to power market pricing since a small percentage of its load is sold on the open market. If the smelters terminate service in the short term, Big Rivers' margins will be much more dependent on market pricing. To reduce market risk, Big Rivers will evaluate the following options:

- Execute forward bilateral sales with counterparties
- Enter into wholesale sales agreements
- Participate in capacity markets
- Evaluate the opportunity to hedge market risk with options (i.e. puts, calls)
- Idle generation until new load is established or developed.

Big Rivers will evaluate implementation of a combination of the above options and will search for additional opportunities for mitigating the short-term risk of smelter loss. Each option is considered viable for short-term implementation and has the potential to stabilize Member rates.

Long-Term Approach

While selling power through short-term commitments in the wholesale market is a valid, viable outlet for Big Rivers' excess generation, having a long-term purchase commitment for power provides greater certainty and risk mitigation to the organization. As such, upon the announcement of a smelter closure, Big Rivers will immediately begin working on procuring long-term commitments from counterparties in need of generation.

Big Rivers will concurrently investigate multiple counterparty opportunities, including but not limited to long-term wholesale agreements, existing load expansion, attracting new industrial load, and attracting new members (cooperative, municipal, etc). Each of these options would provide a stable revenue stream that would help to mitigate market risk to the organization.

Entering into long-term wholesale agreement(s) to sell excess

Given the age of its generating capacity and its low variable cost of production, long-term wholesale sales agreements will likely be a valid outlet for all or a portion of Big Rivers' excess generation. Big Rivers has a plethora of potential counterparties for such a transaction. Because of Big Rivers' location within the MISO footprint, as well as Big Rivers' direct interconnection with other utilities not in the MISO footprint, Big Rivers has a number of opportunities to secure long-term wholesale agreements to sell excess power. Potential counterparties include, but are not limited to, Investor Owned Utilities (IOUs), power marketers, other G&T cooperatives, municipals, and distribution cooperatives. Many of these entities were short of generating capacity prior to the economic downturn and will likely return to the same situation when the economy strengthens. In addition, a number of utilities have announced coal-fired plant retirements to comply with EPA environmental requirements which will further increase sales opportunities.

Existing load expansion

While there may be some opportunity to assist and promote the expansion of existing load within the territory, this load will likely be inconsequential to the overall sales portfolio of Big Rivers. These opportunities will be investigated, as prudent; however, they are not anticipated to be significant contributors to offsetting market risk for Big Rivers.

Attracting new industrial load

Attracting new industrial load to the Big Rivers system will be a key long-term strategic initiative for the organization to aid in minimizing market risk. Big Rivers has a cost competitive advantage over many of its peers because it has a lower cost of generation than most which has largely already been retrofitted with pollution controls. Likewise, Big Rivers' Members benefit from some of the lowest electricity rates in the country. Big Rivers competitive advantage is not expected to deteriorate in the future. This competitive advantage will make Big Rivers a leading contender for attracting new industrial load in the Midwest.

Attracting new members (cooperative, municipal, etc)

Upon approval of Big Rivers' Members, Big Rivers will have the opportunity to offset market risk by securing new members for the system. There are numerous opportunities for adding new distribution

cooperatives and municipals within the state. Because of the competitiveness of Big Rivers' rates, attracting interested parties should be very feasible. Adding new Members will allow Big Rivers future certainty; however, most cooperatives and municipals have multi-year notice power supply commitments that will impact the promptness of market risk mitigation.

The above options will be investigated and implemented, as appropriate, to reduce Big Rivers' market risk. Big Rivers will continue to seek additional opportunities and options to hedge market risk and provide reliable, low-cost power to its Member cooperatives.

Additional Long-Term Options

While many of the previously described marketing and load growth options will be considered and pursued following the loss of smelter load, additional strategies can and will be considered in the long-term. The following options merit consideration and are expected to be particularly attractive if market conditions fall below generation costs.

If the following options are deemed necessary or desirable for the organization, they will be pursued in parallel with any ongoing marketing and load development efforts. While the final option(s) implemented and the timing of each will be dependent on factors that include the Big Rivers corporate strategy, environmental considerations, financial viability, financing availability, near-term power market, anticipated long-term power market, and the overall economic outlook, the following options will be fully evaluated and pursued as appropriate:

Shutdown of Individual Generating Unit(s) and/or entire Generating Station(s)

This option has the potential to quickly and significantly reduce overall system costs while allowing Big Rivers to maintain ownership of valuable assets. The specific generating unit(s) and/or generating station(s) selected will be influenced by the individual unit costs, coal contracts, installed pollution control equipment or additional pollution control requirements, impact to the transmission system, as well as many other issues. The overall evaluation of this option will consider the following:

- Impact on MISO congestion
- Impact to member rates
- Impact on the value and future operability of the asset(s)
- Corporate environmental compliance considerations
- Loss of generation diversity

Sale of Generating Station(s)

This option has the potential to reduce overall system operating costs and debt by liquidating existing asset(s). The specific generating station(s) targeted will be influenced by Big Rivers corporate strategy, the individual unit costs, installed pollution control equipment, outside interest in the asset(s), as well as many other issues. The overall evaluation of this option will consider the following:

- Loss of generation diversity
- Corporate environmental compliance considerations
- Impact to member rates
- Long-term generation needs

- Regulatory approvals
- Creditor approvals

Merger

Under certain circumstances, a merger with another G&T cooperative or acquisition of Big Rivers by another G&T cooperative or an IOU could be beneficial to the Member cooperatives. With the significant low-variable-cost excess generation available under a loss of smelter situation, other entities, that are either currently short of generating capacity or expecting to be in the near future, may find value in either a merger with Big Rivers or the acquisition of some or all of Big Rivers' assets. The overall evaluation of this option will consider the following:

- Price competitiveness
- Impact to member rates
- Big Rivers corporate strategy
- Creditor approvals
- Regulatory approvals

Feb 2012
Board Mtg



Smelter Loss Mitigation Planning

Presented to Board of Directors
February 21, 2012

Agenda

- Purpose
- Short-Term Approach
- Long-Term Approach
- Additional Long-Term Options



Purpose

To draft a strategic document that outlines Big Rivers' options for mitigating the loss of one or both smelters.



Short-Term Approach

- If market prices are **LESS** than generation costs, idle generation until new load is established or developed or market prices increase
- If market prices are **GREATER** than generation costs, market all excess power
- Evaluate options for mitigating market risk



Options for Mitigating Market Risk

- Execute forward bilateral sales with counterparties
- Enter into wholesale sales agreements
- Participate in capacity markets
- Evaluate the opportunity to hedge market risk with options (i.e. puts, calls)



Long-Term Approach

While selling power through short-term commitments is a valid, viable outlet for excess generation, having long-term power commitments provides greater certainty and risk mitigation.



Long-Term Approach

- Entering into long-term wholesale agreement(s) to sell excess
- Existing load expansion
- Attracting new industrial load
- Attracting new members (cooperative, municipal, etc.)



Additional Long-Term Options

- Shutdown of Individual Generating Units(s) and/or entire Generation Station(s)
- Sale of Generating Station(s)
- Merger



Next Steps

- Development of a more tactical plan
 - On-going preparedness
 - Extensive financial modeling is occurring in conjunction with ECP/CPCN filing
 - One-year notice of closure from smelter(s)

