

**CASE**

**NUMBER:**

99-359

Filed 11.10.99

**COMMONWEALTH OF KENTUCKY  
BEFORE THE  
PUBLIC SERVICE COMMISSION OF KENTUCKY**

**In the Matter of:**

**Big Rivers Electric Corporation's Purchase )  
and Sales Tariffs for Cogenerators and Small )  
Power Producers )**

**Case No. 99-354**

**BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION  
OF OCTOBER 28, 1999**

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**Items 22-30**

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**November 8, 1999**



BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

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**Item 22)** Please identify when BREC anticipates completion of its 1999 Power Requirements Study. Please furnish a copy of that study when it is completed.

**Response)** Attached is a copy of Big Rivers' 1999 Power Requirements Study ("PRS"). Big Rivers is in the process of submitting the PRS to the Rural Utilities Service for approval.

**Witness)** C. William Blackburn

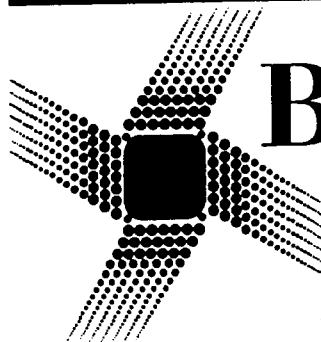
# 1999 Power Requirements Study

for

**Big Rivers Electric Corporation  
Henderson, Kentucky  
Kentucky 62**

1999

99-089-4



**Big Rivers**  
Electric Corporation

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**EXECUTIVE SUMMARY**

## EXECUTIVE SUMMARY

### BIG RIVERS ELECTRIC CORPORATION POWER REQUIREMENTS STUDY

#### OVERVIEW

The 1999 Power Requirements Study (PRS) is a twenty-year (1999 to 2018) forecast of energy requirements and peak demand for Big Rivers Electric Corporation (Big Rivers). Big Rivers is a generation and transmission cooperative system located in western Kentucky with headquarters in Henderson, Kentucky. Big Rivers' four member distribution cooperatives serve approximately 96,152 accounts, of which 90 percent are residential. These residential consumers account for 36.4 percent of total energy sales less sales to two large smelters.

Big Rivers provides all or part of the power requirements of the following four member distribution cooperatives:

<u>Member</u>	<u>RUS Designation</u>
Green River Electric Corporation Owensboro, Kentucky	Kentucky 33
Henderson-Union Electric Cooperative Henderson, Kentucky	Kentucky 55
Jackson Purchase Energy Corporation Paducah, Kentucky	Kentucky 20
Meade County Rural Electric Coop. Corp. Brandenburg, Kentucky	Kentucky 18

The long-term and short-term load forecasts for each member cooperative, arrived at primarily using econometric modeling, are based on historical data from 1979 to 1998. These results have been incorporated into a comprehensive Power Requirements Study for the cooperatives' power supplier, Big Rivers. Econometric forecasts developed for this PRS attempt to model the impacts the local economy has had on the cooperatives' historical sales and use them to project future electricity sales and demand. Such factors as population, total employment, and weather conditions were evaluated in the models used.

The PRS was prepared with a “bottom-up” approach to better analyze the disparate variables that affect the individual consumer classes. These individual classes were then summed to arrive at a total energy requirements forecast for Big Rivers.

## FORECASTS

Historical and projected total energy requirements by class are summarized in Table ES-1 and depicted graphically in Figure ES-1. Total rural energy requirements, calculated as the sum of the class energy forecasts and losses, are projected to grow approximately 3.0 percent per year from 1998 to 2018. Table ES-1 breaks down the total sales into individual consumer classes for the periods 1998-2003 and 1990-2018. The following are the average annual growth rates forecast for Big Rivers’ individual classes for the twenty-year/long-term forecast period and the four-year/short-term period:

<i><b>Energy Sales</b></i>	<i>Average Annual Growth Rate</i>	<i>Average Annual Growth Rate</i>
	<i>1998-2003</i>	<i>1998-2018</i>
Residential Consumers	2.3%	1.9%
Total Residential Energy Sales	3.6%	3.1%
Small Commercial Consumers	2.5%	2.0%
Total Small Commercial Energy Sales	3.7%	2.8%
Large Commercial Consumers	2.1%	1.0%
Total Large Commercial Energy Sales	3.5%	1.1%
Public Street & Highway Lighting Consumers	1.6%	1.5%
Total Public Street & Highway Lighting Sales	2.6%	2.4%
Total Rural Energy Sales	3.6%	1.5%
Smelter Sales	3.0%	0.7%
Total Non-Rural Energy Sales	3.4%	1.0%
Total Rural Energy Requirements	4.2%	3.0%
Total System Energy Requirements	3.5%	1.5%

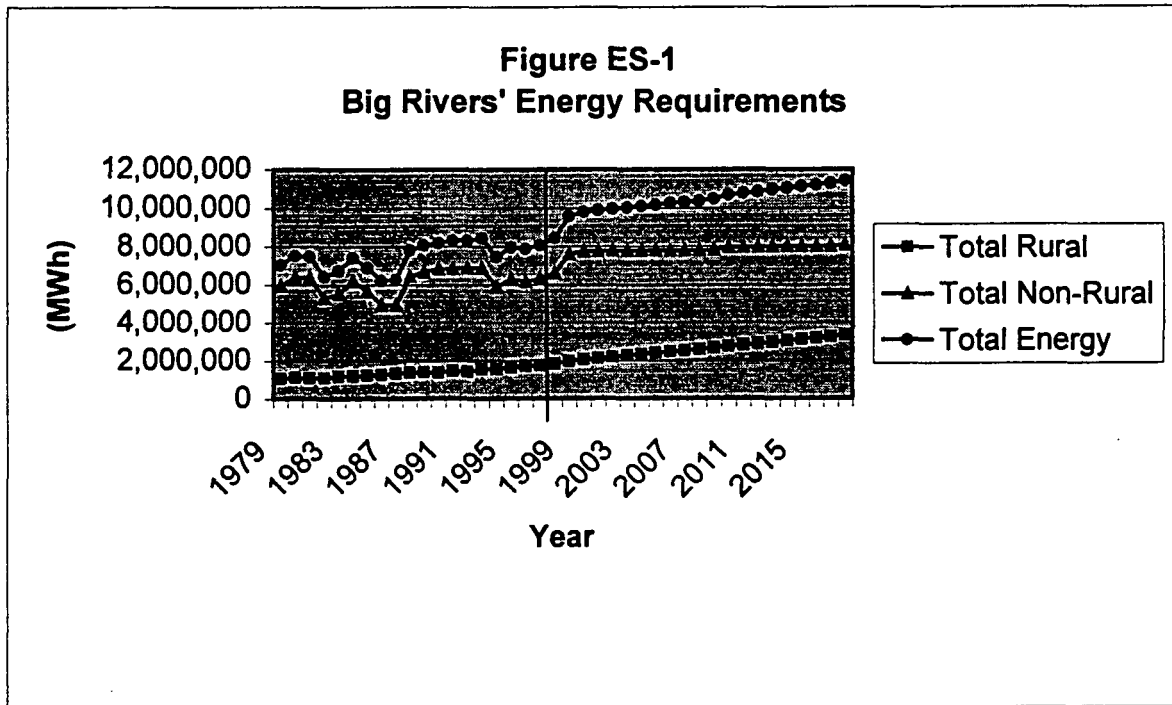
## PEAK DEMAND AND LOAD FACTOR

The long-term peak demand forecast for Big Rivers was developed using an econometric model and the short-term demand model was developed using a seasonal-index model. Table ES-2 and Figure ES-2 display the coincident peak demand forecast for the rural system and the non-coincident peak demand forecast for the total system. As shown, rural coincident peak demand is expected to increase to approximately 765.0 MW by 2018, an average annual increase of 3.0

**Table ES-1  
Energy Forecasts**

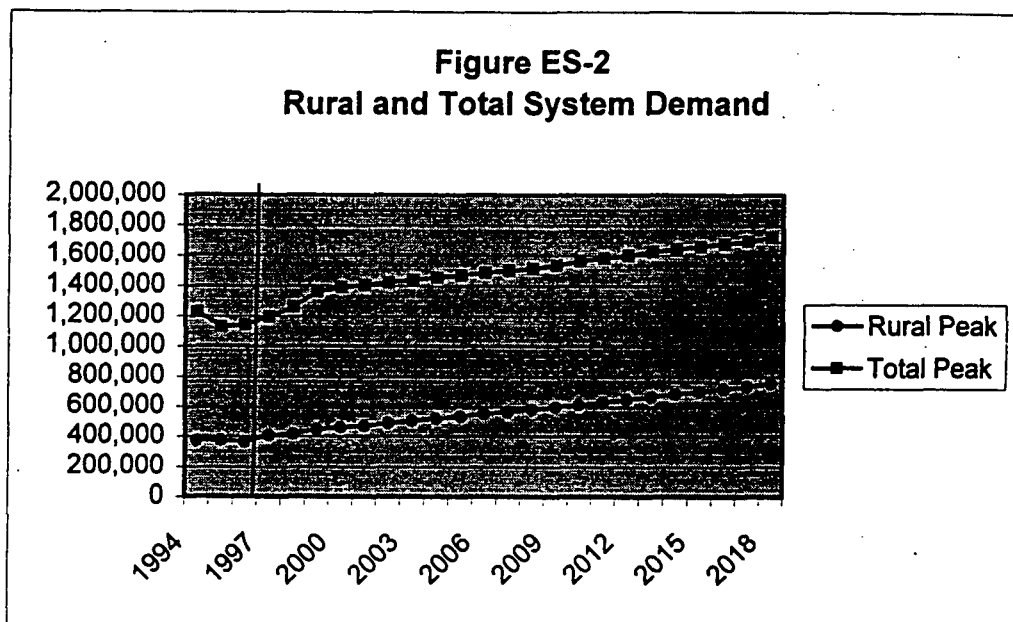
<b>Energy Sales Forecasts By Consumer Class (MWh)</b>	<b>Long-Term 2018</b>	<b>Short-Term 2002</b>
Residential	2,196,184	1,512,782
Small Commercial	739,515	502,491
Large Commercial (Rural)	210,052	121,008
Large Commercial (Non-Rural)	8,062,230	7,772,274
Public Street and Highway	4,596	4,102
<b>Total Rural Energy Requirements [1]</b>	<b>3,339,218</b>	<b>2,179,802</b>
<b>Total System Energy Requirements</b>	<b>11,401,449</b>	<b>9,952,076</b>

[1] The sum of individual short-term consumer forecasts does not equal Total Rural Energy Requirements because Consumer Class Sales Forecast does not include an estimated 6.28 percent in Own Use and Losses. This percentage is estimated based on 1998 difference between Total kWh Purchased and Total kWh Sold



**Table ES-2  
Demand Forecasts**

Demand Forecasts kW	Long-Term 2018	Short-Term 2002
Rural Peak Demand	764,991	487,530
Total System Demand	1,728,618	1,420,758



percent over the forecast period. As shown, total system non-coincident peak demand is expected to increase to approximately 1,728.6 MW by 2018; an average annual increase of 1.6 percent over the forecast period.

<b><i>Coincident and Non-coincident Demand</i></b>	<i>Long-Term Annual Growth Rate 1998-2018</i>	<i>Short-Term Annual Growth Rate 1998-2002</i>
	Coincident Peak Demand (Rural)	3.0%
Non-Coincident Peak Demand (Rural)	3.0%	3.9%
Non-Coincident Peak Demand (Total System)	1.6%	2.7%

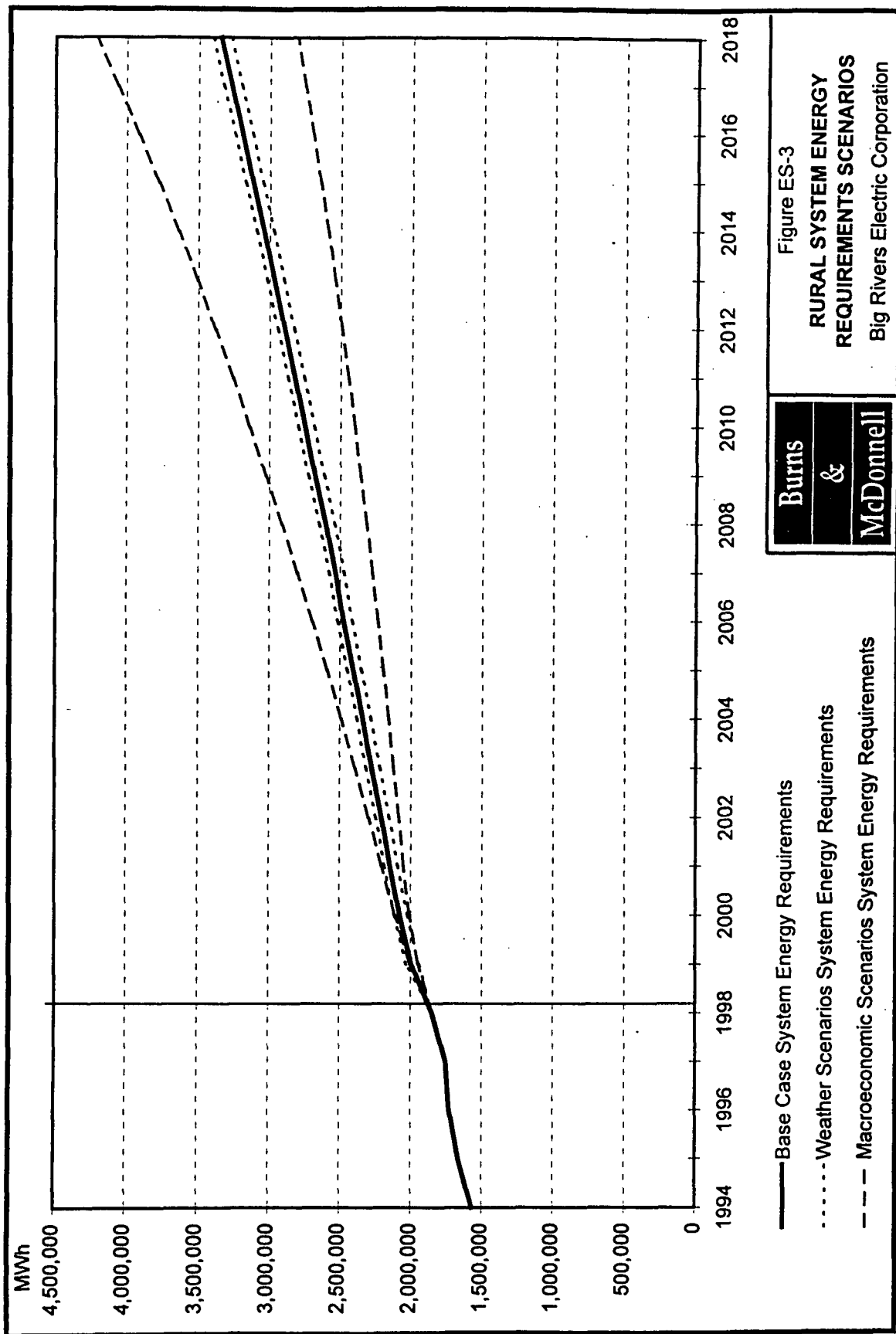
### **COMPARISON WITH OTHER FORECASTS**

The Energy Information Administration (EIA) has forecast total United States net energy for load to grow at 1.4 percent per year through 2020 (Annual Energy Outlook 1998). The administration also predicts that the prime drivers of overall U.S. electricity sales growth will be the residential class at 1.5 percent per year, most of which (87 percent) will be due to an increased use of electricity. This of particular interest due to the cooperative's large residential consumer classification. The commercial and industrial sectors are projected to have lower annual growth rates of 1.2 and 1.3 percent per year, respectively, through 2020.

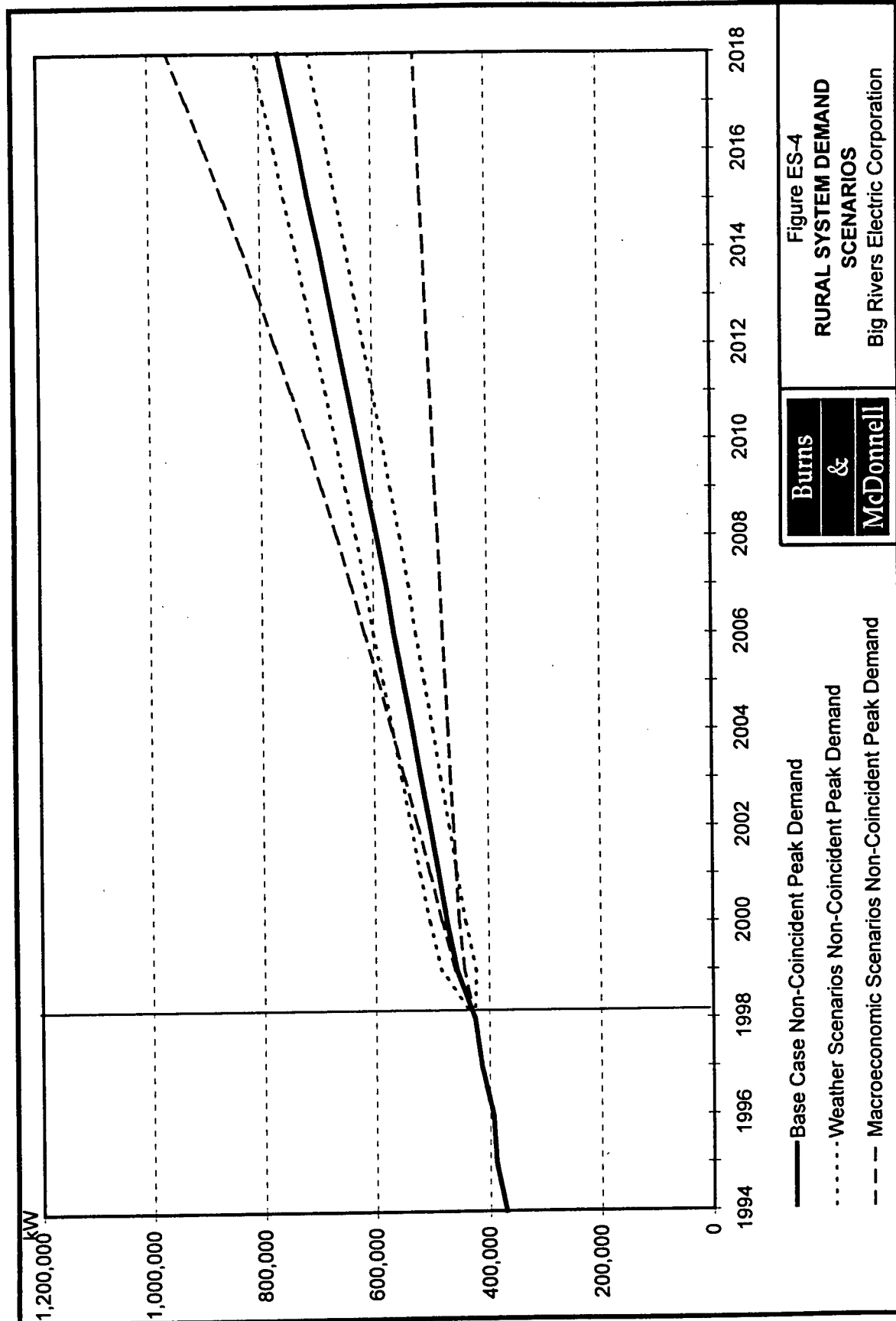
### **UNCERTAINTY ANALYSES**

Uncertainty analyses were performed to estimate the impact of varying conditions on the cooperative's rural load growth. Weather assumptions, economic conditions, and electricity prices were varied from the historical norms used in the base case projections. The uncertainty analyses were completed based on rural sales, and therefore did not include non-rural sales.

Figure ES-3 indicates that electricity sales are expected to be much more dependent on future economic conditions than year-to-year weather variation. Conversely, Figure ES-4 indicates that a high level of year-to-year variation in peak demand is the result of variance in weather conditions. The variation in peak demand due to economic conditions was developed by applying the base case load factor to the optimistic and pessimistic energy requirements scenarios, these show nearly as much variation as the weather scenarios.







The optimistic economic scenario forecast projects that total energy requirements will reach 4,210,797 MWh by 2018 and peak demand will reach 966.4 MW. The pessimistic economic scenario forecast projects that total energy requirements will reach only approximately 2,808,213 MWh by 2018 and peak demand will reach 523.9 MW.

\*\*\*\*\*

**PART I – INTRODUCTION**

**PART I**  
**INTRODUCTION**

**THE 1999 PRS**

The 1999 Power Requirements Study (PRS) is a twenty-year (1999 to 2018) forecast of energy requirements and seasonal peak demand for Big Rivers Electric Corporation (Big Rivers).

This study represents an aggregation of the forecasts prepared for each of these members. The study will serve as the foundation of Big Rivers' operations and planning activities, which include the following:

- Resource development
- Financial analysis
- Rate design and development
- Marketing
- Demand-side management
- Load control
- Consumer services planning

This PRS has been prepared in accordance with current RUS guidelines. Details of the specific methodologies employed in the development of this PRS can be found in the 1999 Power Requirements Study Work Plan for Big Rivers (Work Plan). The Work Plan was developed jointly among Big Rivers, its members and Burns and McDonnell and has been approved by Big Rivers' Board of Directors and the RUS's Energy Forecasting Branch.

Big Rivers' intends for this document to be part of a series of ongoing reviews of the demand, energy and consumer requirements of the system.

**BACKGROUND**  
**The Cooperative**

Big Rivers is a generation and transmission cooperative headquartered in Henderson, Kentucky. Big Rivers provides all or part of the power requirements of the following four member distribution cooperatives with service territories in western and northwestern Kentucky:

<u>Member</u>	<u>RUS Designation</u>
Green River Electric Corporation Owensboro, Kentucky	Kentucky 33
Henderson-Union Electric Cooperative Henderson, Kentucky	Kentucky 55
Jackson-Purchase Electric Cooperative Energy Corporation Paducah, Kentucky	Kentucky 20
Meade County Rural Electric Cooperative Corporation Brandenburg, Kentucky	Kentucky 18

These distribution cooperatives serve primarily residential consumers, with 80,121 residential consumers or 89.4 percent of total consumers. In addition, sales for two of Big Rivers's members, Jackson Purchase and Meade County, are primarily residential. Big Rivers currently provides power to its members through seventy-one rural substations as well as twenty-five dedicated metering points. Power is delivered based on a tariff that became effective July 18, 1998.

### **Geography and Climate**

Geography and climate of the service area can be responsible for much of the year-to-year variation in a utility's energy sales and peak demand. Although future weather conditions cannot be forecast more than a few days ahead, historical weather data are used in explanatory equations to account for fluctuations in historical electricity sales caused by abnormal weather conditions.

The topography of the Big Rivers members' service areas range from nearly level along the Ohio River to moderately hilly in the upland areas. Typical elevations range from approximately 400 to 1,000 feet above sea level.

The climate in the area is humid, temperate and continental. Daily and seasonal changes in temperature, cloudiness, wind and precipitation may be sudden and extreme. The seasons are well defined, but changes between the seasons are gradual. The weather statistics from the Evansville and Paducah weather stations were used for the econometric analysis in this study.

## **Economic & Demographic Factors**

In addition to the effects of the local geography and climate on sales, electricity sales in the United States generally track the economy. The strong correlation between the total U.S. electricity sales and GDP has been well documented. However, the factors which are most important to the Big Rivers'-area economy are not the same factors which drive the overall U.S. economy. Therefore, a detailed analysis of the members' local economies was conducted as part of this PRS. Economic and demographic factors affecting electricity sales within the service area may include electricity prices, alternate fuel prices, the population and employment of the service area and income – both total personal and per capita income relative to the service area.

An extensive data base of county-level data was obtained for this study. To better represent the members' service areas, these data were weighted based on member cooperatives' estimated market shares in the various counties they serve. Such factors as population, total employment, sector employment, the level of real (inflation-adjusted) total personal income, real per capital income, real electricity prices, real alternative fuel prices, and weather conditions were evaluated in the econometric equations developed for this PRS. Refer to Appendix A for a listing of the data sources used in this PRS.

## **Forecasting Techniques Used in this PRS**

The 1999 PRS is based on historical data from the period 1970 through 1998, from which forecasts for the period 1999 through 2018 were developed. A variety of forecasting techniques were used in order to develop the forecast of Big Rivers' energy requirements and peak demand. Econometric modeling was the primary forecasting technique used to quantify relationships between energy and economic, demographic and system trends. The basic premise of econometric forecasting is that the historical relationship between energy sales and various influencing factors will continue. The econometric forecasts developed for this PRS attempt to capture the impact of the local economy on the cooperatives' sales. Refer to the distribution member cooperative reports for a detailed discussion of the specific models developed.

Other methods including judgment and discussions with the member cooperatives and Big Rivers were also employed when necessary to enhance the modeling or to replace it where models were not practical. The extensive knowledge that Big Rivers and the member cooperatives have of the service areas enhanced the formal forecasting approaches. Ongoing discussions among Big Rivers, the member cooperatives and Burns & McDonnell were carried out to ensure that this

PRS incorporates the best and most current information available. Adjustments were made, as necessary, to account for known changes to significant loads.

The long-term forecasts for the period 1999 to 2018, shown in Part II, were developed based on historical data from 1979 to 1998. Short-term forecasts, also shown in Part II, were developed to project the total energy requirements and system coincident peak demand monthly through 2002. Part III of this study presents a range of long-term forecasts based on different assumptions about the future. Uncertainty analyses were performed to estimate the impact of varying conditions on the cooperative's load growth.

A listing of the data sources used in the forecasting, RUS Form 341, the adjustments made to the Form 7 data for the modeling process and the database of input assumptions are included in the appendices.

\* \* \* \* \*

**PART II - FORECASTS**



## PART II

### FORECASTS

#### **FACTORS CONSIDERED IN ECONOMIC FORECASTING**

The basic premise of econometric forecasting is that the historical relationship between energy sales and economic and demographic factors will continue into the future. Thus, the underlying hypothesis of this study is that Big Rivers' future energy sales growth, in general, is likely to be determined by the same factors that have influenced growth in the past. Factors including population, total employment, the level of real (inflation-adjusted) total personal income, real per capita income, real electricity prices, and real alternative fuel prices were considered. The forecasts of consumers and electricity sales were developed based on the factors identified which affect the following consumer classes of the cooperative's system:

- Number of residential consumers
- Residential energy sales per consumer
- Total residential energy sales
- Number of small commercial consumers
- Small commercial energy sales per consumer
- Total small commercial energy sales
- Number of large commercial consumers
- Total large commercial energy sales
- Other consumers
- Other energy sales

#### **Climate: Projected Weather Data**

The effects weather has on consumer spending for electricity is in the form of heating and cooling costs during the various seasons of the year. Table II-1 displays twenty-nine years of annual historical data from the Evansville, Indiana weather station and fourteen years of annual historical data from the Paducah, Kentucky weather station. The twenty-year projections are based on the historical averages. Included in the table are both heating degree days and cooling degree days for the calendar year. A heating degree day is an indicator of heating requirements based on the difference between 65 degrees Fahrenheit and the average daily temperature. Likewise, a cooling degree day is an indicator of cooling requirements based on the difference between the average

Table II-1  
 HISTORICAL AND PROJECTED WEATHER DATA [1]  
 Big Rivers Electric Corporation

Calendar Year Data [1]				Calendar Year Data [2]			
Year	Heating Degree Days	Cooling Degree Days	Total Degree Days	Heating Degree Days	Cooling Degree Days	Total Degree Days	
1970	4,893	1,396	6,289				
1971	4,428	1,566	5,994				
1972	4,909	1,160	6,069				
1973	4,188	1,567	5,755				
1974	4,172	1,229	5,401				
1975	4,283	1,500	5,783				
1976	4,784	1,112	5,896				
1977	4,799	1,779	6,578				
1978	5,420	1,550	6,970				
1979	5,227	1,238	6,465				
1980	5,095	1,726	6,821				
1981	4,548	1,389	5,937				
1982	4,399	1,349	5,748				
1983	4,640	1,684	6,304				
1984	4,822	1,365	5,987				
1985	4,785	1,445	6,230	4,480	1,439	5,919	
1986	4,366	1,576	5,962	3,948	1,734	5,680	
1987	4,290	1,623	5,913	3,868	1,841	5,709	
1988	4,822	1,500	6,322	4,398	1,658	6,056	
1989	4,830	1,396	6,226	4,443	1,492	5,935	
1990	3,856	1,380	5,236	3,460	1,557	5,017	
1991	4,253	1,757	6,010	3,713	1,965	5,678	
1992	4,217	1,240	5,457	3,524	1,382	4,906	
1993	4,652	1,613	6,265	4,231	1,686	5,917	
1994	4,180	1,489	5,669	3,911	1,409	5,320	
1995	4,314	1,773	6,087	4,129	1,615	5,744	
1996	5,088	1,224	6,292	4,573	1,390	5,963	
1997	4,901	1,119	6,020	4,445	1,271	5,716	
1998	3,863	1,629	5,492	3,535	1,798	5,333	
Historical							
Projected	1999	4,580 [3]	1,460 [3]	6,041	4,047 [4]	1,588 [4]	5,635
	2000	4,580	1,460	6,041	4,047	1,588	5,635
	2001	4,580	1,460	6,041	4,047	1,588	5,635
	2002	4,580	1,460	6,041	4,047	1,588	5,635
	2003	4,580	1,460	6,041	4,047	1,588	5,635
	2004	4,580	1,460	6,041	4,047	1,588	5,635
	2005	4,580	1,460	6,041	4,047	1,588	5,635
	2006	4,580	1,460	6,041	4,047	1,588	5,635
	2007	4,580	1,460	6,041	4,047	1,588	5,635
	2008	4,580	1,460	6,041	4,047	1,588	5,635
	2009	4,580	1,460	6,041	4,047	1,588	5,635
	2010	4,580	1,460	6,041	4,047	1,588	5,635
	2011	4,580	1,460	6,041	4,047	1,588	5,635
	2012	4,580	1,460	6,041	4,047	1,588	5,635
	2013	4,580	1,460	6,041	4,047	1,588	5,635
	2014	4,580	1,460	6,041	4,047	1,588	5,635
	2015	4,580	1,460	6,041	4,047	1,588	5,635
	2016	4,580	1,460	6,041	4,047	1,588	5,635
	2017	4,580	1,460	6,041	4,047	1,588	5,635
	2018	4,580	1,460	6,041	4,047	1,588	5,635

[1] Weather data provided by Big Rivers for the Evansville, Indiana weather station.  
 [2] Weather data provided by Jackson Purchase for the Paducah, Kentucky weather station.  
 [3] Twenty-nine year average.  
 [4] Fourteen year average.

daily temperature and 65 degrees Fahrenheit. These indicators are more often used in econometric modeling of energy usage than is temperature.

## **Economic & Demographic Projections**

**Population.** A change in the number on residential consumers due to a change in population can account for a large portion of change in the system load. Population growth in Big Rivers' member service territories has generally been similar to the population growth rates of the U.S. and the State of Kentucky. See Table II-2 for the historical and projected total population figures as given by the *Woods & Poole* for the Big Rivers' service area. Since 1993, the area has had population growth averaging 0.8 percent annually. According to *Woods & Poole* figures, during the 1993 to 1998 period the State of Kentucky and the U.S. had annual population growth rates of 0.8 percent and 0.9 percent respectively. Total population forecast for Big Rivers' service territory is projected to grow steadily at 0.6 percent per year through 2018.

**Employment.** Growth in employment typically has a significant impact on energy sales in the residential and small commercial classes. Total employment in Big Rivers' service area has grown steadily over the past fifteen years, as shown in Table II-2, and is projected to increase during the next twenty years as well. The average annual compound growth rate from 1993 through 1998 was 1.9 percent. In 1999, total employment is estimated to be 104,480 which is up 1.1 percent from 1998. The projected growth rate from 1998 to 2018 is 0.9 percent annually.

**Income.** A factor which has a direct impact on consumer spending, including electricity purchases, is the level of real (inflation-adjusted) personal income. In addition to total personal income, per capita income was evaluated for its historical relationship to the number of consumers and electricity sales. Historical weighted *Woods and Poole* income data is shown in Table II-2. Per capita income (total personal income divided by total population) measures the average income of the persons in the area under study. As shown in Table II-2, the per capita income is projected to grow 1.2 percent annually from 1998 to 2018.

**Real Electricity Prices.** Historical and projected electricity prices for the residential and small commercial classes were developed based on projected wholesale prices to the members from Big Rivers and historical retail markups for the member systems. Real electricity prices, figured in 1992 dollars, are forecast to steadily decline for the residential and commercial classes for each of the member systems. Refer to the member reports for specific price projections.

Table II-2

HISTORICAL AND PROJECTED ECONOMIC & DEMOGRAPHIC DATA  
Big Rivers Electric Corporation

Year	Big Rivers			Kentucky			United States		
	Total Population	Total Employment	Per capita Income	Total Population	Total Employment	Per capita Income	Total Population	Total Employment	Per capita Income
	In (1,000's)	In (1,000's)	In (1,000's)	In (1,000's)	In (1,000's)	In (1,000's)	In (1,000's)	In (1,000's)	In (1,000's)
1979	196,373	84,785	\$ 14,581	3,636	1,668	\$ 14,135	224,567	113,288	\$ 17,282
1980	196,600	83,731	\$ 14,013	3,665	1,646	\$ 13,858	227,226	114,231	\$ 17,203
1981	198,943	83,028	\$ 14,408	3,670	1,639	\$ 14,135	228,468	115,304	\$ 17,486
1982	198,751	81,352	\$ 14,263	3,683	1,620	\$ 14,039	231,665	114,521	\$ 17,402
1983	198,768	82,247	\$ 13,593	3,694	1,629	\$ 13,785	233,783	116,020	\$ 17,578
1984	201,074	84,221	\$ 14,805	3,695	1,682	\$ 14,832	235,828	121,051	\$ 18,578
1985	200,968	83,668	\$ 14,658	3,688	1,706	\$ 14,901	237,925	124,473	\$ 19,050
1986	200,435	84,401	\$ 14,737	3,688	1,741	\$ 15,082	240,134	126,941	\$ 19,467
1987	199,657	84,843	\$ 14,962	3,683	1,774	\$ 15,402	242,290	130,371	\$ 19,750
1988	198,468	86,340	\$ 15,097	3,680	1,828	\$ 15,857	244,500	134,676	\$ 20,235
1989	198,747	88,910	\$ 15,494	3,677	1,877	\$ 16,074	246,820	137,318	\$ 20,547
1990	199,332	90,614	\$ 15,558	3,682	1,915	\$ 16,258	249,441	139,185	\$ 20,652
1991	198,626	90,334	\$ 15,507	3,715	1,916	\$ 16,285	252,128	138,766	\$ 20,333
1992	201,262	91,828	\$ 15,891	3,752	1,984	\$ 16,781	255,004	139,411	\$ 20,831
1993	203,420	93,896	\$ 15,960	3,793	2,005	\$ 16,860	257,755	142,005	\$ 20,814
1994	204,993	96,362	\$ 16,288	3,824	2,049	\$ 17,077	260,295	145,650	\$ 21,089
1995	207,205	98,938	\$ 16,508	3,856	2,104	\$ 17,522	262,761	149,444	\$ 21,717
1996	208,787	100,371	\$ 17,040	3,882	2,134	\$ 18,016	265,181	152,337	\$ 22,267
1997	210,580	102,067	\$ 17,341	3,908	2,180	\$ 18,453	267,637	155,711	\$ 22,844
Historical 1998	211,981	103,308	\$ 17,587	3,937	2,208	\$ 18,701	270,051	157,520	\$ 23,119
Projected 1999	213,210	104,480	\$ 17,839	3,964	2,236	\$ 18,959	272,373	159,342	\$ 23,404
2000	214,400	105,605	\$ 18,088	3,990	2,263	\$ 19,218	274,676	161,178	\$ 23,694
2001	215,594	106,687	\$ 18,333	4,016	2,280	\$ 19,478	276,963	163,028	\$ 23,988
2002	216,816	107,736	\$ 18,571	4,043	2,317	\$ 19,737	279,238	164,890	\$ 24,285
2003	217,996	108,773	\$ 18,812	4,069	2,344	\$ 19,998	281,501	166,766	\$ 24,586
2004	219,146	109,796	\$ 19,054	4,095	2,370	\$ 20,259	283,765	168,654	\$ 24,890
2005	220,360	110,812	\$ 19,291	4,121	2,396	\$ 20,520	286,034	170,555	\$ 25,196
2006	221,540	111,817	\$ 19,530	4,148	2,423	\$ 20,780	288,328	172,469	\$ 25,503
2007	222,778	112,824	\$ 19,765	4,175	2,449	\$ 21,037	290,644	174,395	\$ 25,809
2008	224,057	113,828	\$ 19,996	4,202	2,476	\$ 21,285	292,991	176,332	\$ 26,116
2009	225,333	114,826	\$ 20,228	4,230	2,502	\$ 21,550	295,371	178,282	\$ 26,422
2010	226,623	115,835	\$ 20,460	4,258	2,528	\$ 21,803	297,783	180,243	\$ 26,728
2011	227,949	116,828	\$ 20,689	4,287	2,555	\$ 22,055	300,225	182,216	\$ 27,033
2012	228,314	117,832	\$ 20,914	4,316	2,581	\$ 22,304	302,694	184,200	\$ 27,338
2013	230,698	118,832	\$ 21,139	4,345	2,607	\$ 22,553	305,179	186,195	\$ 27,644
2014	232,072	119,837	\$ 21,365	4,375	2,634	\$ 22,800	307,682	188,200	\$ 27,951
2015	233,449	120,838	\$ 21,592	4,404	2,660	\$ 23,048	310,193	190,216	\$ 28,259
2016	234,850	121,832	\$ 21,816	4,434	2,686	\$ 23,294	312,712	192,242	\$ 28,568
2017	236,237	122,831	\$ 22,043	4,464	2,712	\$ 23,540	315,235	194,278	\$ 28,879
2018	237,622	123,829	\$ 22,271	4,494	2,738	\$ 23,787	317,753	196,324	\$ 29,193

Average Annual Compound Growth Rates:

1979-1998	0.4%	1.0%	1.0%	0.4%	1.5%	1.5%	1.0%	1.7%	1.5%
1993-1998	0.8%	1.9%	2.0%	0.8%	2.0%	2.1%	0.9%	2.1%	2.1%
1998-2003	0.6%	1.0%	1.4%	0.7%	1.2%	1.4%	0.8%	1.1%	1.2%
1998-2018	0.6%	0.9%	1.2%	0.7%	1.1%	1.2%	0.8%	1.1%	1.2%

**Alternative Fuels.** Another factor, which may influence electricity sales, is the availability of alternative energy sources. Liquid propane and natural gas have proven to be the largest competitors to electricity in the service area. Timber is another alternative source of heating fuel available in the western portion of the state.

## **PRESENTATION OF ECONOMETRIC EQUATIONS**

The essence of the "bottom-up" approach to the 1999 PRS for Big Rivers was the realization that there is no one typical member cooperative. Before being able to forecast the energy requirements for Big Rivers' system, the factors that most influence electricity sales for each particular cooperative needed to be identified. Only after determining the power requirements of each individual cooperative could Big Rivers' aggregate forecast be developed.

Similarly, the bottom-up approach to the 1999 PRS for each of Big Rivers member distribution cooperatives recognized that there is no typical consumer class. Therefore, sales forecasts for each individual consumer class were developed to arrive at the system-wide forecast of each members' total power requirements.

This part of the report presents the aggregated results of the forecasts of consumers and electricity sales by consumer class that were developed for Big Rivers' members. Big Rivers' members' consumer classes include the following:

1. Residential
2. Small Commercial
3. Large Commercial
4. Public Street and Highway Lighting

Big Rivers' total system energy requirements were calculated as the sum of the above components of the members' systems.

## **FORECASTS BY CONSUMER CLASS**

**Forecast Results.** The following sections discuss the results of the forecasts of consumers and energy sales by class for each of the distribution member cooperatives that Big Rivers serves. Many models were developed in the process of developing Big Rivers' forecast. Because of this,

the models are discussed in a generic sense only. For a detailed description of a particular model, refer to the appropriate distribution cooperative PRS report.

**Number of Consumers.** The residential class is by far the largest consumer class on Big Rivers' system, accounting for nearly 89.4 percent of Big Rivers' member distribution cooperatives' consumers in 1998. The small commercial class accounted for approximately 10.4 percent of Big Rivers' members' consumers. The remaining consumers are made up of the various consumer classes listed earlier on page II-3.

The aggregate forecast of the number of consumers by consumer class is shown in Table II-3. This table indicates that Big Rivers' members' residential consumers are forecast to increase from 86,615 in 1998 to 127,391 by 2018. This equates to an average annual increase of 1.9 percent, which compares to historical growth of 1.8 percent annually from 1979 to 1998. The number of small commercial consumers is forecast to increase at an average annual rate of 2.0 percent, which compares to average annual growth of 2.7 percent from 1979 to 1998.

Big Rivers' members' total number of consumers is projected to increase from 96,152 in 1998 to 141,608 by 2018. This equates to expected average annual increases of 2.0 percent, which compares to historical growth of 1.9 percent annually from 1979 to 1998. Thus, Big Rivers' members' consumer base is expected to increase at a rate slightly higher than that experienced over the past 20 years.

### **Energy Sales by Consumer Class**

**Residential.** In 1998, sales to the residential class made up approximately 64.8 percent of Big Rivers' member cooperatives' total rural system energy requirements and 36.4 percent of total energy requirements to all consumers except the smelters. Energy sales to the residential sector grew at an average annual rate of 2.6 percent during the study period (1979 to 1998). This compares to the national average residential sales growth of 2.7 percent per year over the same period.

Residential electricity sales are often strongly related to the number of residential consumers. Many times this relationship is so strong that it overshadows other factors influencing residential energy sales. Therefore, residential energy sales per consumer was used as the dependent variable in a separate model in order to isolate the variation in sales due to factors other than the

Table II-3

## NUMBER OF CONSUMERS BY CONSUMER CLASS

Big Rivers Electric Corporation

Year	Residential	Small Commercial	Large Commercial	Public Street & Highway	Total Consumers
1979	61,858	5,616	17	76	67,567
1980	63,049	5,800	18	74	68,940
1981	63,941	6,061	19	76	70,097
1982	64,502	6,272	22	84	70,880
1983	65,519	6,619	23	93	72,255
1984	66,607	6,916	25	98	73,646
1985	67,753	7,022	27	99	74,901
1986	68,871	7,152	33	96	76,152
1987	69,945	7,296	34	101	77,375
1988	71,033	7,425	36	104	78,597
1989	72,170	7,525	40	109	79,844
1990	73,156	7,730	40	116	81,042
1991	74,176	7,854	40	121	82,190
1992	75,667	7,897	38	124	83,727
1993	77,266	8,060	37	129	85,492
1994	78,879	8,198	44	134	87,256
1995	80,808	8,407	42	136	89,393
1996	82,658	8,690	46	152	91,545
1997	84,622	9,015	48	158	93,843
Historical 1998	86,615	9,326	50	161	96,152
Projected 1999	88,790	9,636	51	164	98,641
2000	90,959	9,860	54	167	101,040
2001	93,003	10,088	54	169	103,314
2002	95,057	10,310	54	172	105,593
2003	97,100	10,532	55	175	107,862
2004	99,130	10,754	55	177	110,116
2005	101,209	10,979	55	180	112,423
2006	103,277	11,203	56	182	114,718
2007	105,383	11,426	56	185	117,050
2008	107,529	11,653	56	188	119,425
2009	109,621	11,884	57	190	121,753
2010	111,699	12,111	57	193	124,061
2011	113,613	12,344	57	196	126,210
2012	115,555	12,569	58	199	128,381
2013	117,482	12,792	58	202	130,534
2014	119,461	13,026	58	205	132,750
2015	121,416	13,254	59	208	134,937
2016	123,410	13,487	59	211	137,166
2017	125,402	13,714	59	214	139,389
2018	127,391	13,940	60	217	141,608

## Average Annual Compound Growth Rates:

1979-1998	1.8%	2.7%	5.8%	4.1%	1.9%
1993-1998	2.3%	3.0%	5.9%	4.5%	2.4%
1998-2003	2.3%	2.5%	2.1%	1.6%	2.3%
1998-2018	1.9%	2.0%	1.0%	1.5%	2.0%

variation in the number of consumers. A cross-sectional or pooled econometric model was developed to forecast residential energy sales per consumer for Big Rivers' member distribution cooperatives. Variables in this equation included the real price of residential electricity, heating degree days, and real per capita income.

The total residential energy sales projections were calculated by multiplying the projected number of residential consumers times the residential energy sales per consumer projections. The average annual compound growth rate for this class' consumption was 2.6 percent over the historical period of 1993 to 1998. In 1998, sales to the residential class totaled 1,199,476 MWh. Total residential energy sales are projected to increase to 2,196,184 MWh in 2018, an average annual compound growth rate of 3.1 percent. This forecast is shown in Table II-4.

**Small Commercial.** The small commercial class is defined as commercial accounts with less than 1000 kVA transformer capacity. Typical consumers in this class include small farming operations, service stations, restaurants and other retail establishments. In 1997, the small commercial class accounted for 23 percent of Big Rivers' total rural energy requirements.

Small commercial energy sales have historically grown faster than residential sales for Big Rivers as a whole, with average annual growth of 3.6 percent from 1979 to 1998 versus 2.6 percent for the residential class over the same time frame. For Big Rivers, as a whole, small commercial sales are projected to increase from the 1998 level of 427,835 MWh to 739,515 MWh by 2018. This represents an average annual growth rate of 2.8 percent, which is somewhat smaller than the historical period growth rate. This is primarily due to the consumer forecast shown on Table II-2, which projects consumer growth at rates less than historically experienced.

**Large Commercial.** The large commercial class includes commercial accounts with greater than 1000 kVA transformer capacity. A portion of these accounts is directly served by Big Rivers while the remainder is served by the respective cooperative. In 1998, the non-rural large commercial class accounted for approximately 78.1 percent of Big Rivers' total system energy requirements. By contrast Big Rivers' members' rural large commercial consumers contributed 5.6 percent to Big Rivers' total rural energy requirements in 1998 and 1.2 percent to Big Rivers' total energy requirements. All large commercial energy sales were generally forecast judgmentally taking into consideration past trends and expected future developments. Information for these projections was supplied by the members and/or the individual consumers.



Table II-4

**SUMMATION OF MEMBER COOPERATIVES' ENERGY SALES BY CONSUMER CLASS**  
Big Rivers Electric Corporation (MWh)

Year	Residential Sales	Small Commercial Sales	Large Commercial Sales	Public Street & Highway	Member System Sales	Member System Own Use	Member System Distribution Losses	Member Energy Requirements	Total Rural Energy Requirements	Non-rural (Smelters)	Total Non-rural (Incl. Smelters)	Total Energy Requirements Less Smelters	Total Energy Requirements for Generation Service Provided by Big Rivers [1]
1979	735,825	217,825	5,973,411	2,210	6,929,271	2,909	98,784	7,029,485	1,088,620	5,900,327	5,940,865	1,529,158	1,669,747
1980	795,960	235,321	6,421,525	2,032	7,454,859	2,754	7,528,564	1,130,221	1,130,221	6,300,343	6,390,343	1,593,448	1,744,019
1981	841,835	241,341	6,411,878	1,985	7,401,040	2,810	7,479,670	1,098,611	1,098,611	6,301,059	6,381,059	1,585,967	1,735,461
1982	756,931	253,355	5,330,458	1,999	6,342,743	2,932	6,428,261	85,998	1,125,808	4,732,186	5,300,454	1,694,075	1,822,600
1983	781,501	259,602	5,561,107	1,833	6,604,043	2,816	6,707,235	6,707,235	1,178,499	4,880,411	6,194,609	1,826,824	1,960,969
1984	819,670	278,805	6,228,632	1,887	7,329,994	3,042	7,398,951	7,398,951	1,204,342	5,495,014	6,523,312	1,903,937	2,051,916
1985	819,928	289,908	5,684,642	1,927	6,796,406	2,864	6,899,093	6,899,093	1,245,780	4,964,900	5,653,193	1,934,193	2,072,174
1986	871,530	290,082	4,962,292	1,981	6,125,886	2,982	6,215,491	6,215,491	1,288,785	4,196,758	4,926,706	2,016,733	2,141,043
1987	909,195	301,409	4,967,375	2,048	6,190,027	3,079	6,270,519	6,270,519	1,340,439	4,163,243	4,930,080	2,107,276	2,232,686
1988	931,639	314,641	4,464,563	2,110	7,113,154	3,196	7,012,761	7,012,761	1,385,417	5,627,682	6,472,729	2,185,464	2,341,727
1989	925,721	319,729	6,703,573	2,154	7,951,178	3,255	7,832,761	7,832,761	1,405,199	5,862,015	6,667,563	2,210,746	2,372,202
1990	930,785	335,203	6,845,797	2,177	8,113,962	3,133	7,808	8,113,962	1,405,199	5,862,015	6,667,563	2,210,746	2,372,202
1991	991,459	342,875	6,871,879	2,276	8,208,490	3,136	102,337	8,314,440	1,480,680	5,916,778	6,809,244	2,274,687	2,438,516
1992	945,487	347,706	6,927,025	2,275	8,222,493	3,043	100,446	8,328,337	1,440,331	5,969,212	6,833,760	2,345,228	2,511,517
1993	1,052,301	368,541	6,913,643	2,417	8,336,902	3,090	106,578	8,445,131	1,581,744	6,001,284	6,866,006	2,325,053	2,491,580
1994	1,040,652	360,612	5,953,034	2,509	7,356,908	3,228	97,690	7,454,549	1,571,485	5,966,768	6,863,387	2,476,363	2,647,265
1995	1,101,490	381,680	6,384,586	2,641	7,850,397	3,334	104,393	7,967,752	1,866,327	5,162,811	5,863,064	2,511,687	2,660,778
1996	1,144,623	389,024	6,395,950	2,661	7,933,058	3,599	111,432	7,997,784	1,728,680	5,028,097	6,154,104	2,854,687	2,958,176
1997	1,137,995	411,100	6,463,933	2,802	8,015,830	3,305	107,102	8,071,289	1,755,841	5,032,845	6,315,447	3,038,416	3,199,829
1998	1,199,476	427,635	6,693,375	2,848	8,323,532	3,439	108,892	8,438,991	1,849,759	5,142,775	6,589,232	3,295,216	3,484,995
1999	1,259,340	453,983	7,738,820	2,919	9,457,062	3,754	117,617	9,575,331	1,987,841	5,954,580	7,567,490	3,620,751	3,686,368
2000	1,304,839	467,495	7,897,769	2,994	9,673,096	3,874	122,055	9,795,109	2,071,466	5,954,580	7,726,643	3,843,529	3,913,183
2001	1,346,101	484,181	7,928,401	3,071	9,762,753	3,974	125,612	9,888,378	2,139,659	5,954,580	7,751,719	3,936,798	4,008,143
2002	1,390,125	497,950	7,950,264	3,150	9,840,590	4,049	128,781	9,972,428	2,200,154	5,954,580	7,772,274	4,017,848	4,090,662
2003	1,434,575	513,549	7,955,368	3,231	9,906,743	4,136	132,369	10,042,236	2,269,407	5,954,580	7,772,829	4,087,656	4,161,735
2004	1,479,959	526,460	7,955,901	3,307	9,965,627	4,213	135,500	10,104,380	2,331,368	5,954,580	7,773,014	4,149,800	4,225,005
2005	1,526,957	543,310	7,956,437	3,384	10,030,068	4,303	139,101	10,172,395	2,399,185	5,954,580	7,773,211	4,217,815	4,294,253
2006	1,574,812	556,416	7,970,756	3,464	10,105,448	4,384	142,438	10,251,368	2,468,439	5,954,580	7,782,929	4,296,788	4,374,657
2007	1,614,989	569,730	7,971,315	3,546	10,159,580	4,457	145,543	10,308,418	2,525,293	5,954,580	7,783,125	4,353,838	4,432,741
2008	1,666,353	583,208	7,971,885	3,629	10,225,076	4,541	149,065	10,377,491	2,594,170	5,954,580	7,803,321	4,422,911	4,500,066
2009	1,717,305	600,739	7,995,762	3,715	10,317,521	4,634	152,492	10,473,432	2,670,871	5,954,580	7,826,561	4,518,852	4,600,745
2010	1,768,755	614,364	8,139,183	3,803	10,526,105	4,716	155,748	10,685,555	2,739,972	5,954,580	7,945,584	4,518,852	4,816,713
2011	1,818,098	632,098	8,139,792	3,894	10,594,382	4,810	159,268	10,757,432	2,811,652	5,954,580	7,945,584	4,518,852	4,816,713
2012	1,870,906	645,678	8,144,664	3,986	10,665,234	4,898	162,981	10,831,982	2,886,015	5,954,580	7,945,584	4,518,852	4,816,713
2013	1,923,101	662,817	8,202,431	4,081	10,782,430	4,986	166,474	10,962,843	2,959,540	5,954,580	8,003,303	4,877,412	4,889,892
2014	1,976,375	676,987	8,203,081	4,179	10,860,623	5,083	169,920	11,034,559	3,031,059	5,954,580	8,003,303	4,877,412	4,889,892
2015	2,029,910	694,433	8,207,997	4,278	10,936,619	5,183	173,731	11,114,451	3,110,755	5,954,580	8,003,303	4,877,412	4,889,892
2016	2,084,597	708,526	8,208,949	4,382	11,006,619	5,273	177,192	11,187,829	3,183,665	5,954,580	8,003,303	4,877,412	4,889,892
2017	2,139,992	725,693	8,209,918	4,487	11,080,290	5,375	180,653	11,265,409	3,260,777	5,954,580	8,004,164	4,877,412	4,889,892
2018	2,196,184	739,515	8,272,263	4,596	11,212,578	5,468	189,484	11,401,449	3,339,218	5,954,580	8,062,230	4,877,412	4,889,892

Average Annual Compound Growth Rates:

1979-1998	2.6%	3.6%	0.6%	1.3%	1.0%	0.9%	0.4%	1.0%	2.8%	-0.4%	0.5%	4.1%	3.9%
1993-1998	2.7%	3.0%	-0.6%	3.3%	0.0%	2.2%	-0.1%	0.0%	3.2%	-2.9%	-0.6%	5.9%	5.5%
1998-2003	3.6%	3.7%	3.5%	2.6%	3.5%	3.8%	4.4%	3.5%	4.2%	3.0%	3.4%	4.4%	3.7%
1998-2018	3.1%	2.8%	1.1%	2.6%	1.6%	2.3%	1.6%	1.5%	3.0%	0.7%	1.0%	2.5%	2.4%

[1] Includes Big Rivers' line losses. Losses for 1979 - 1998 were based on 2 percent of member cooperatives total energy requirements. Forecasted losses for the period 1999 - 2018 were based on the formula (1 - 0.0178) multiplied by the forecasted generation sales. This includes all sales except those to the smelters.

The sum of the members' forecasts indicates non-rural large commercial sales are projected to increase from the 1998 level of 6,693,375 MWh to 8,272,283 MWh by 2018. This represents an average annual compound growth rate of 1.1 percent over the entire forecast period. But, as this class is extremely sensitive to economic conditions, a prolonged economic expansion could contribute significantly to large commercial class growth rate.

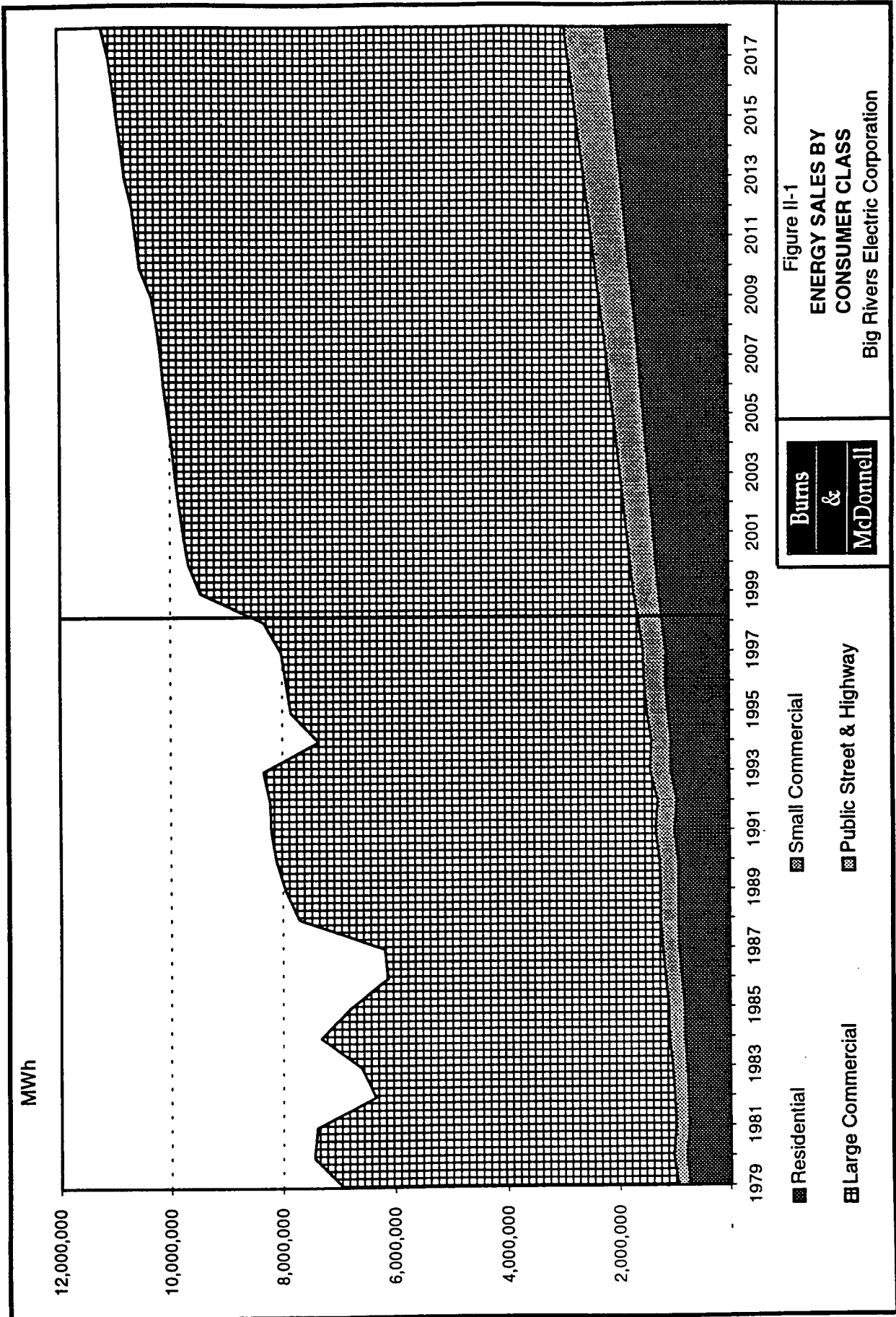
**Other Classes.** Public street and highway lighting sales were forecast judgmentally. These projections were developed taking into consideration past trends and expected future developments. In addition, adjustments were made for known developments in the service area for each member cooperative. These miscellaneous class forecasts were shown earlier in Table II-4.

The members' own use and losses forecasts were generally based on the 1993 to 1997 weighted averages of their own use and losses. Borrower's own use and losses are defined as the energy the members purchase from Big Rivers less total sales to the members' customers.

#### **TOTAL SYSTEM ENERGY REQUIREMENTS**

Historical and projected energy sales by consumer class for Big Rivers' members are shown in Table II-4 and depicted graphically in Figure II-1. Big Rivers' total system energy requirements, calculated as the sum of the class energy forecasts described above, are projected to grow approximately 1.5 percent per year from 1998 to 2018. This compares to total system sales growth of 1.0 percent annually from 1979 to 1998. This forecast is dominated by the non-rural (large commercial) class, which is in turn dominated by the Alcan and Southwire accounts at Henderson-Union and Green River, respectively. This class comprised approximately 78 percent of Big Rivers' members' 1998 sales, and is expected to maintain fairly constant energy consumption over the forecast period. The two large smelter accounts will continue to receive transmission services from Big Rivers but will no longer receive generation services from Big Rivers.

Total energy requirements for generation services provided by Big Rivers are shown in the column to the far right. This total includes Big Rivers' losses that, by contract, are computed using the formula,  $(1 - 0.0178)$ .



Big Rivers' energy requirements by member cooperative are shown in Table II-5 and depicted graphically in Figure II-2. Rural energy requirements were 1,849,759 MWh in 1998. Rural energy requirements are projected to increase to 3,339,218 MWh by 2018. This equates to an average annual compound growth rate of 3.0 percent. This compares to a rate of 2.8 percent over the previous twenty years.

## **DEMAND**

**Rural Peak Demand.** Rural system demand is displayed in Table II-6. Rural system demand was 425.0 MW in 1998 and is expected to reach 765.0 MW by the year 2018. This growth amounts to an average annual percentage increase of 3.0 percent over the twenty-year forecast period. From 1994 to 1998 the systems rural demand grew at an average annual compound growth rate of 4.3 percent per year. This difference in growth rates can be attributed to increased demand from rural large consumers on the system.

**Total System Peak Demand.** Total system demand is displayed in Table II-7. Total system demand was 1,266.4 MW in 1998 and is expected to reach 1,728.6 MW by the year 2018. This growth amounts to an average annual percentage increase of 1.6 percent over the twenty-year forecast period. From 1994 to 1998 the systems' total demand grew at an average annual rate of 1.1 percent per year. This difference in growth rates can be attributed to several reasons. Firstly, demand for the smelters decreased from 1994 to 1995 and then grew but hadn't returned to the 1994 level by 1998. Smelter demand is expected to increase in 1999 with the addition of a new pot line at Southwire. Rural demand is expected to increase at a rate higher than the historical rate due to healthy growth in the local economy.

## **SHORT-TERM FORECASTS**

**Energy.** The short-term rural energy forecast is displayed in Table II-8. Monthly rural energy sales for each member cooperative for the years 1994 to 1998 were used to project monthly rural energy sales for the years 1999 through 2002. The individual members' short-term forecasts predict that rural energy sales for Big Rivers will reach 2,179,802 MWh by the year 2002. This expected value is less than the long-term forecast of 2,200,154 MWh by 20,352 MWh. The forecast indicates that the average annual compound growth rate of rural energy sales in the short-term will be 4.2 percent, which is identical to the system growth over the previous five years.

Table II-5  
**ENERGY REQUIREMENTS BY MEMBER COOPERATIVE**  
 Big Rivers Electric Corporation  
 (MWh)

Year	Green River		Henderson-Union		Jackson Purchase		Meade		Member Energy Requirements		Percent Increase
	Rural [1]	Non-Rural	Rural [1]	Non-Rural	Rural [1]	Non-Rural	Rural [1]	Non-Rural	Rural Requirements [1]	Non-Rural Requirements	
1979	348,133	3,481,324	233,918	2,398,544	311,718	60,996	184,850	194,850	1,083,620	5,840,865	7,029,485
1980	361,946	3,490,542	248,862	2,852,509	323,793	47,282	202,600	202,600	1,138,221	6,390,343	7,528,564
1981	357,739	3,512,113	239,909	2,840,390	307,847	28,557	193,118	193,118	1,068,611	6,381,059	7,478,670
1982	371,698	3,060,568	242,388	2,220,158	318,562	19,728	193,160	193,160	1,125,806	5,300,454	6,428,261
1983	377,308	3,348,092	257,868	2,158,526	338,348	24,118	208,975	208,975	1,178,489	5,528,736	6,707,225
1984	397,142	3,522,522	257,962	2,650,581	342,009	21,507	207,229	207,229	1,204,342	6,194,609	7,398,951
1985	402,230	3,527,640	265,937	2,107,550	358,127	19,122	218,486	218,486	1,245,780	5,653,312	6,899,093
1986	424,946	3,450,619	268,604	1,463,019	371,663	26,380	234,220	234,220	1,288,785	4,828,706	6,215,491
1987	439,592	3,440,681	274,134	1,463,019	392,503	26,380	234,220	234,220	1,340,439	4,930,080	6,270,518
1988	448,984	3,674,113	285,213	2,727,714	408,454	25,902	242,787	242,787	1,385,417	6,427,729	7,813,146
1989	454,898	3,682,361	288,963	2,941,645	413,521	43,557	247,819	247,819	1,405,189	6,687,563	8,072,761
1990	448,897	3,751,912	278,997	3,005,333	408,327	51,988	245,000	245,000	1,382,220	6,809,244	8,191,465
1991	481,152	3,752,691	301,930	3,034,457	435,713	48,612	261,885	261,885	1,480,680	6,833,760	8,314,440
1992	468,148	3,759,923	294,600	3,076,974	424,027	49,109	255,558	255,558	1,440,331	6,888,006	8,328,337
1993	508,644	3,714,817	314,890	3,089,720	476,722	58,850	283,394	283,394	1,581,744	6,863,387	8,445,131
1994	505,269	3,608,028	312,544	2,222,594	470,277	54,444	283,394	283,394	1,571,465	5,883,064	7,454,549
1995	536,035	3,830,348	324,688	2,413,793	489,495	51,284	308,109	308,109	1,666,327	6,295,425	7,961,752
1996	557,460	3,879,475	338,959	2,219,234	517,057	55,395	317,204	317,204	1,728,880	6,154,104	7,882,784
1997	587,963	4,040,072	337,440	2,222,508	524,250	52,887	328,188	328,188	1,755,841	6,315,447	8,071,289
1998	598,520	4,250,975	357,541	2,281,498	550,304	56,759	342,393	342,393	1,849,759	6,569,232	8,438,991
1999	634,319	5,209,682	412,491	2,321,040	584,162	56,758	356,869	356,869	1,987,841	7,587,490	9,575,331
2000	659,145	5,348,845	432,048	2,321,040	606,911	56,758	373,361	373,361	2,071,468	7,726,643	9,798,109
2001	687,196	5,373,921	440,348	2,321,040	625,058	56,758	387,055	387,055	2,139,659	7,751,719	9,891,378
2002	705,621	5,394,476	449,039	2,321,040	644,075	56,758	401,419	401,419	2,200,154	7,772,274	9,972,428
2003	728,150	5,395,031	457,790	2,321,040	667,216	56,758	416,251	416,251	2,269,407	7,772,829	10,042,238
2004	747,289	5,395,218	466,555	2,321,040	685,842	56,758	431,669	431,669	2,331,366	7,773,014	10,104,380
2005	770,643	5,395,413	475,615	2,321,040	705,415	56,758	447,511	447,511	2,396,185	7,773,211	10,172,395
2006	790,547	5,405,131	484,828	2,321,040	729,162	56,758	463,902	463,902	2,468,439	7,782,929	10,251,368
2007	807,588	5,405,327	494,441	2,321,040	745,884	56,758	477,383	477,383	2,535,293	7,783,125	10,308,418
2008	828,399	5,405,523	504,288	2,321,040	768,747	56,758	494,736	494,736	2,594,170	7,783,321	10,377,481
2009	851,644	5,424,763	514,299	2,321,040	782,392	56,758	512,538	512,538	2,670,871	7,802,581	10,473,432
2010	871,390	5,567,786	524,368	2,321,040	813,534	56,758	530,680	530,680	2,739,972	7,845,584	10,685,555
2011	895,184	5,567,982	534,573	2,321,040	838,085	56,758	545,630	545,630	2,811,652	7,945,780	10,831,992
2012	915,797	5,568,178	545,580	2,321,040	863,481	56,758	561,158	561,158	2,888,015	7,945,976	10,831,992
2013	940,390	5,825,505	556,378	2,321,040	888,212	56,758	576,560	576,560	2,959,540	8,003,303	10,962,843
2014	981,344	5,825,702	567,217	2,321,040	910,138	56,758	592,359	592,359	3,031,059	8,003,500	11,034,559
2015	986,371	5,825,898	578,148	2,321,040	937,934	56,758	608,303	608,303	3,110,755	8,003,696	11,114,451
2016	1,007,794	5,828,368	589,127	2,321,040	962,268	56,758	624,478	624,478	3,183,665	8,004,164	11,187,829
2017	1,033,355	5,828,634	600,480	2,321,040	986,156	56,758	640,786	640,786	3,260,777	8,004,632	11,265,409
2018	1,055,472	5,884,432	611,902	2,321,040	1,014,480	56,758	657,353	657,353	3,339,218	8,062,230	11,401,449
Historical Projected											
2000	659,145	5,348,845	432,048	2,321,040	584,162	56,758	356,869	356,869	1,987,841	7,587,490	9,575,331
2001	687,196	5,373,921	440,348	2,321,040	606,911	56,758	373,361	373,361	2,071,468	7,726,643	9,798,109
2002	705,621	5,394,476	449,039	2,321,040	625,058	56,758	387,055	387,055	2,139,659	7,751,719	9,891,378
2003	728,150	5,395,031	457,790	2,321,040	644,075	56,758	401,419	401,419	2,200,154	7,772,274	9,972,428
2004	747,289	5,395,218	466,555	2,321,040	667,216	56,758	416,251	416,251	2,269,407	7,772,829	10,042,238
2005	770,643	5,395,413	475,615	2,321,040	685,842	56,758	431,669	431,669	2,331,366	7,773,014	10,104,380
2006	790,547	5,405,131	484,828	2,321,040	705,415	56,758	447,511	447,511	2,396,185	7,773,211	10,172,395
2007	807,588	5,405,327	494,441	2,321,040	729,162	56,758	463,902	463,902	2,468,439	7,782,929	10,251,368
2008	828,399	5,405,523	504,288	2,321,040	745,884	56,758	477,383	477,383	2,535,293	7,783,125	10,308,418
2009	851,644	5,424,763	514,299	2,321,040	768,747	56,758	494,736	494,736	2,594,170	7,783,321	10,377,481
2010	871,390	5,567,786	524,368	2,321,040	782,392	56,758	512,538	512,538	2,670,871	7,802,581	10,473,432
2011	895,184	5,567,982	534,573	2,321,040	813,534	56,758	530,680	530,680	2,739,972	7,845,584	10,685,555
2012	915,797	5,568,178	545,580	2,321,040	838,085	56,758	545,630	545,630	2,811,652	7,945,780	10,831,992
2013	940,390	5,825,505	556,378	2,321,040	863,481	56,758	561,158	561,158	2,888,015	7,945,976	10,831,992
2014	981,344	5,825,702	567,217	2,321,040	888,212	56,758	576,560	576,560	2,959,540	8,003,303	10,962,843
2015	986,371	5,825,898	578,148	2,321,040	910,138	56,758	592,359	592,359	3,031,059	8,003,500	11,034,559
2016	1,007,794	5,828,368	589,127	2,321,040	937,934	56,758	608,303	608,303	3,110,755	8,003,696	11,114,451
2017	1,033,355	5,828,634	600,480	2,321,040	962,268	56,758	624,478	624,478	3,183,665	8,004,164	11,187,829
2018	1,055,472	5,884,432	611,902	2,321,040	986,156	56,758	640,786	640,786	3,260,777	8,004,632	11,265,409
2019					1,014,480	56,758	657,353	657,353	3,339,218	8,062,230	11,401,449

Average Annual Compound Growth Rates:

1979-1998	2.9%
1983-1998	3.4%
1999-2003	4.0%
1998-2018	2.9%

[1] Total energy requirements for rural consumers include line losses.

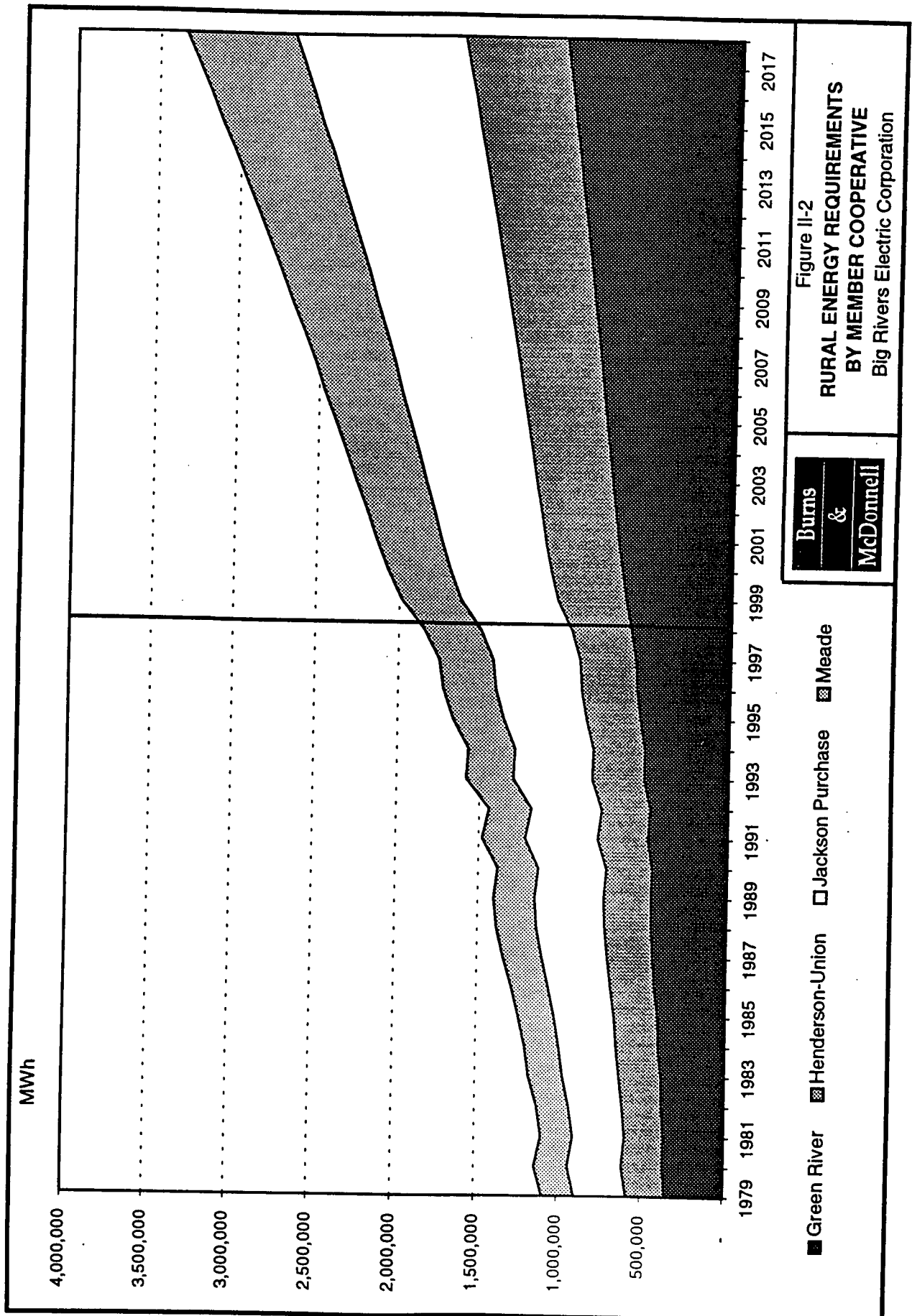


Table II-6

**RURAL SYSTEM ENERGY REQUIREMENTS,  
PEAK DEMAND AND LOAD FACTOR**  
Big Rivers Electric Corporation

	Year	Rural System Energy Requirements		Rural System Peak Demand [1]		Coincident Load Factor
		(MWh)	Percent Increase	(kW)	Percent Increase	Percent
	1994	1,571,485	-	359,832	-	49.9
	1995	1,666,327	6.0%	387,914	7.8%	49.0
	1996	1,728,680	3.7%	382,214	-1.5%	51.6
	1997	1,755,841	1.6%	409,524	7.1%	48.9
Historical	1998	1,849,759	5.3%	425,035	3.8%	49.7
Projected	1999	1,987,841	7.5%	455,400 [2]	7.1%	49.8 [3]
	2000	2,071,466	4.2%	474,558	4.2%	49.8
	2001	2,139,659	3.3%	490,180	3.3%	49.8
	2002	2,200,154	2.8%	504,039	2.8%	49.8
	2003	2,269,407	3.1%	519,905	3.1%	49.8
	2004	2,331,366	2.7%	534,099	2.7%	49.8
	2005	2,399,185	2.9%	549,636	2.9%	49.8
	2006	2,468,439	2.9%	565,501	2.9%	49.8
	2007	2,525,293	2.3%	578,526	2.3%	49.8
	2008	2,594,170	2.7%	594,305	2.7%	49.8
	2009	2,670,871	3.0%	611,877	3.0%	49.8
	2010	2,739,972	2.6%	627,708	2.6%	49.8
	2011	2,811,652	2.6%	644,129	2.6%	49.8
	2012	2,886,015	2.6%	661,165	2.6%	49.8
	2013	2,959,540	2.5%	678,009	2.5%	49.8
	2014	3,031,059	2.4%	694,394	2.4%	49.8
	2015	3,110,755	2.6%	712,651	2.6%	49.8
	2016	3,183,665	2.3%	729,355	2.3%	49.8
	2017	3,260,777	2.4%	747,020	2.4%	49.8
	2018	3,339,218	2.4%	764,991	2.4%	49.8

Average Annual Compound Growth Rates:

1994-1998	4.2%	4.3%
1998-2003	4.2%	4.1%
1998-2018	3.0%	3.0%

Table II-7

**TOTAL SYSTEM ENERGY REQUIREMENTS,  
PEAK DEMAND AND LOAD FACTOR**

Big Rivers Electric Corporation

Year	Total System Energy Requirements (MWh)	Percent Increase	Non-Rural Demand Net of Smelters (kW)	Smelters' Demand (kW)	Rural System Demand (kW)	Total System Demand <sup>[1]</sup> (kW)	Percent Increase	Load Factor Percent
1984	7,454,549	-	149,714	703,908	359,832	1,213,454	-	70.1
1985	7,961,752	6.8%	164,899	581,154	387,914	1,143,987	-5.7%	79.4
1986	7,882,784	-1.0%	183,530	584,229	362,214	1,159,973	1.4%	77.6
1987	8,071,289	2.4%	188,129	598,802	409,524	1,196,455	3.1%	77.0
1988	8,438,991	4.8%	236,339	605,069	425,035	1,266,443	5.8%	76.1
1989	9,575,331	13.5%	227,228	686,000	455,400	1,368,628	8.1%	79.9
2000	9,788,109	2.3%	242,228	686,000	474,558	1,402,785	2.5%	79.7
2001	9,891,378	1.0%	245,228	686,000	490,180	1,421,408	1.3%	79.4
2002	9,972,428	0.8%	247,228	686,000	504,039	1,437,267	1.1%	79.2
2003	10,042,236	0.7%	247,228	686,000	519,905	1,453,132	1.1%	78.9
2004	10,104,380	0.6%	247,428	686,000	534,059	1,467,527	1.0%	78.6
2005	10,172,395	0.7%	247,428	686,000	549,636	1,483,063	1.1%	78.3
2006	10,251,368	0.8%	248,428	686,000	565,501	1,499,929	1.1%	78.0
2007	10,308,418	0.6%	248,428	686,000	578,526	1,512,954	0.9%	77.8
2008	10,377,491	0.7%	248,428	686,000	584,305	1,528,733	1.0%	77.5
2009	10,473,432	0.9%	250,428	686,000	611,877	1,548,305	1.3%	77.2
2010	10,685,555	2.0%	265,428	686,000	627,708	1,579,135	2.0%	77.2
2011	10,757,432	0.7%	265,428	686,000	644,129	1,595,557	1.0%	77.0
2012	10,831,992	0.7%	265,428	686,000	661,165	1,612,593	1.1%	76.7
2013	10,982,843	1.2%	271,428	686,000	678,009	1,635,437	1.4%	76.5
2014	11,034,559	0.7%	271,428	686,000	694,394	1,651,821	1.0%	76.3
2015	11,114,451	0.7%	271,628	686,000	712,651	1,670,279	1.1%	76.0
2016	11,187,829	0.7%	271,628	686,000	729,355	1,686,982	1.0%	75.7
2017	11,265,409	0.7%	271,628	686,000	747,020	1,704,648	1.0%	75.4
2018	11,401,449	1.2%	277,628	686,000	764,991	1,728,618	1.4%	75.3

Average Annual Compound Growth Rates:

1984-1998	3.1%	12.1%	-3.7%	4.3%	1.1%
1998-2003	3.5%	0.9%	2.5%	4.1%	2.8%
1998-2018	1.5%	0.8%	0.8%	3.0%	1.6%

[1] System peak demand equals rural system coincident peak demand plus non-rural non-coincident peak demand.



Table II-8

Summary of Short-term Rural Forecasts  
By Member Cooperative

Big Rivers Electric Corporation

Year	Green River			Henderson-Union			Jackson Purchase			Meade			Total		
	Rural Consumers Energy (MWh)	Rural Consumers Demand kW(1)	Rural Consumers Energy (MWh)	Rural Consumers Demand kW(1)	Rural Consumers Energy (MWh)	Rural Consumers Demand kW(1)	Rural Consumers Energy (MWh)	Rural Consumers Demand kW(1)	Rural Consumers Energy (MWh)	Rural Consumers Demand kW(1)	Rural Consumers Energy (MWh)	Rural Consumers Demand kW(1)	Rural Consumers Energy (MWh)	Rural Consumers Demand kW(1)	Rural Consumers Load Factor
1994	505,269	117,295	312,544	74,983	470,277	109,508	283,394	70,410	1,571,485	371,184	48.33				
1995	536,035	126,588	324,088	71,784	499,495	121,330	308,108	68,724	1,666,327	388,434	48.97				
1996	557,460	123,476	336,959	76,962	517,057	117,783	317,204	75,455	1,728,680	393,656	50.13				
1997	567,963	135,829	337,440	75,245	524,250	127,059	326,188	75,295	1,755,841	413,428	48.48				
1998	599,520	141,552	357,541	78,118	550,304	128,946	342,393	75,683	1,849,759	425,299	49.65				
1999	622,995	145,284	411,849	86,508	589,861	132,384	355,463	79,025	1,980,169	443,189	51.00				
2000	650,608	150,805	432,376	88,742	613,601	136,338	384,481	82,246	2,061,087	458,130	51.36				
2001	674,070	156,325	443,254	90,724	632,443	140,291	373,258	85,468	2,123,024	472,808	51.28				
2002	692,733	161,848	454,295	92,750	651,179	144,245	381,595	88,669	2,179,802	487,530	51.04				
Average Annual Compound Growth Rates:															
1894-1998	4.4%	4.8%	3.4%	1.4%	4.0%	4.4%	4.8%	1.8%	4.2%	3.5%					
1998-2002	3.7%	3.4%	6.2%	4.1%	4.3%	2.8%	2.7%	4.0%	4.2%	3.5%					

[1] Rural coincident peak demand. Big Rivers peak may not equal the sum of the cooperatives peak because these peaks may have occurred in different months.

**Demand.** The short-term rural demand forecast is also displayed in Table II-8. Monthly rural coincident peak demand for each member cooperative for the years 1994 to 1998 was used to project monthly rural coincident peak demand for the years 1999 through 2002. The individual members' short-term forecasts predict that rural peak demand for Big Rivers will reach 487.5 MW by the year 2002. This expected value is slightly less than the long-term forecast of 504.0 MW. The difference between the two forecasts reflects the addition of numerous large commercial loads, in the short-term, that are not accounted for in the last five years of trend data, and the fact that the long-term peak demand forecast is tied directly to the long-term energy forecast via expected load factor. The forecast indicates that the average annual growth rate of rural peak demand, in the short-term, will be 3.5 percent, which is a bit higher than the historical five-year period.

**Non-rural.** Table II-9 displays the short-term growth predictions for the non-rural portion of Big Rivers' load. The top portion of Table II-9 addresses the complete non-rural load and the bottom portion addresses the Alcan and Southwire smelters only. Total non-rural demand is expected to reach 933.2 MW by the year 2002. Of that amount, 686.0 MW will pertain to the two smelter accounts.

### **PENDING CONSOLIDATION**

The Kentucky Public Service Commission approved the merger of Henderson-Union Electric Cooperative and Green River Electric Cooperative on July 1, 1999. The name of the new cooperative is Kenergy and headquarters for the combined unit are in Henderson, Kentucky. The management of both cooperatives believes that the combination of their operations will result in increased operational efficiency and cost savings over the long term. The benefits of this merger include a 4 percent rate reduction for all consumers that went immediately into effect after the consolidation. The combination of Henderson-Union and Green River created a single cooperative that serves portions of 14 counties in the western area of the state. The new cooperative has over 48,000 consumers.

### **Comparison With Other Forecasts**

The Energy Information Administration has forecast total United States net energy for load to grow at 1.4 percent per year through 2020 (Annual Energy Outlook 1998). The administration also predicts that the prime drivers of overall U.S. electricity sales growth will be the residential class at 1.5 percent per year, most of which (87 percent) will be due to an increased use of

Table II-9

Summary of Short-term Non-Rural Forecasts  
By Member Cooperative

Big Rivers Electric Corporation

Total Non-Rural Sales and Demand

Year	Green River Total Non-rural		Henderson-Union Total Non-rural		Jackson Purchase Non-rural		Total Non-rural		
	Energy (MWh)	Demand kW	Energy (MWh)	Demand kW	Energy (MWh)	Demand kW	Energy (MWh)	Demand kW	Load Factor
1994	3,606,026	456,521	2,222,594	385,891	54,444	11,210	5,883,064	853,622	78.67
1995	3,830,348	472,141	2,413,793	272,792	51,284	11,120	6,295,425	756,053	95.05
1996	3,879,475	484,770	2,219,234	284,284	55,395	8,705	6,154,104	777,759	90.33
1997	4,040,072	498,587	2,222,508	277,944	52,867	10,400	6,315,447	786,931	91.61
1998	4,250,975	527,918	2,281,498	302,668	56,759	10,822	6,589,232	841,408	89.40
1999	5,209,692	616,106	2,321,040	286,300	56,758	10,822	7,587,490	913,228	94.85
2000	5,348,845	631,106	2,321,040	286,300	56,758	10,822	7,726,643	928,228	95.02
2001	5,373,921	634,106	2,321,040	286,300	56,758	10,822	7,751,719	931,228	95.03
2002	5,394,476	636,106	2,321,040	286,300	56,758	10,822	7,772,274	933,228	95.07

"Smelter Only" Sales and Demand

Year	Green River (Smelter Only)		Henderson-Union (Smelter Only)		Total Non-rural		
	Energy (MWh)	Demand kW	Energy (MWh)	Demand kW	Energy (MWh)	Demand kW	Load Factor
1994	2,911,486	357,617	2,031,376	346,291	4,942,862	703,908	80.16
1995	3,032,739	358,220	2,130,072	232,934	5,162,811	591,154	99.70
1996	3,045,189	359,739	1,982,908	234,490	5,028,097	594,229	96.59
1997	3,069,775	363,802	1,963,110	235,000	5,032,885	598,802	95.95
1998	3,130,317	365,069	2,012,458	240,000	5,142,775	605,069	97.03
1999	3,902,580	450,000	2,052,000	236,000	5,954,580	686,000	99.09
2000	3,902,580	450,000	2,052,000	236,000	5,954,580	686,000	99.09
2001	3,902,580	450,000	2,052,000	236,000	5,954,580	686,000	99.09
2002	3,902,580	450,000	2,052,000	236,000	5,954,580	686,000	99.09

electricity. This is of particular interest due to the cooperatives' large residential consumer classification. The commercial and industrial sectors are projected to have lower annual growth rates of 1.2 and 1.3 percent per year, respectively, through 2020.

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## PART III

### UNCERTAINTY ANALYSES

A range of forecasts based on different assumptions about the future is useful in developing flexible plans for supplying future loads. Therefore, uncertainty analyses were performed to estimate the impact of varying conditions on Big Rivers' future rural system energy requirements and peak demand. The rural system energy requirements scenarios presented in this part of the report represent the sum of the respective energy requirements scenarios developed for the member distribution cooperatives, while the rural system peak demand analyses were conducted at the G&T level. Although no attempt was made to assign probabilities of occurrence to the various scenarios, the analyses were developed to provide some indication of the range in which the forecasts could vary due to alternative input assumptions.

Two sets of scenarios were developed. In the first analysis, weather assumptions were varied from the historical averages used in Big Rivers' members' base case projections. The second analysis considered optimistic and pessimistic future economic conditions. These analyses are described below.

#### **WEATHER UNCERTAINTY**

Both energy requirements and peak demand projections were developed for scenarios that assumed severe and mild weather conditions.

#### **Severe Weather Scenario**

To project rural system energy requirements for this scenario, the historical maximum numbers of heating and cooling degree days were inserted into the residential energy sales per consumer equation for each member system. The small commercial, large commercial, and other miscellaneous classes were generally assumed to be non-weather sensitive. The severe weather energy requirements scenario is shown in Table III-1. This forecast indicates that Big Rivers' system rural energy requirements would reach 3,403,594 MWh by 2018 given the assumptions mentioned herein, which would be a 3.1 percent average annual compound growth rate over 1998.

To develop the extreme weather coincident peak demand scenario for all of the cooperatives except Meade County, the minimum load factor experienced from 1974 to 1998 was applied to the base case energy requirements forecast. The average load factor experienced from 1991 to 1998 was applied to the

Table III-1

**SEVERE WEATHER SCENARIO  
ENERGY SALES BY CONSUMER CLASS**

Big Rivers Electric Corporation

Year	Total			Public Street & Highway	Total Sales	Total			Losses	Own Use	Rural Energy Requirements
	Residential	Small Commercial	Large Commercial			Commercial	Street & Highway	Sales			
1994	1,040,652	360,612	70,298	2,509	1,474,072	94,186	3,226	1,571,485			
1995	1,101,490	381,680	69,478	2,641	1,555,288	107,704	3,334	1,666,327			
1996	1,144,823	389,824	78,668	2,661	1,615,776	109,305	3,599	1,728,680			
1997	1,137,995	411,100	92,414	2,802	1,644,311	108,225	3,305	1,755,841			
1998	1,199,476	427,835	111,516	2,846	1,741,673	104,647	3,439	1,849,759			
Historical											
Projected											
1999	1,299,369 [1]	453,983	151,330	2,919	1,907,602	118,320 [3]	3,784	2,029,705			
2000	1,345,898	467,495	171,126	2,994	1,987,513	123,057	3,904	2,114,475			
2001	1,388,168	484,181	177,682	3,071	2,053,101	126,662	4,006	2,183,769			
2002	1,433,223	497,050	177,990	3,150	2,111,414	129,896	4,081	2,245,390			
2003	1,478,696	513,549	182,558	3,231	2,178,035	133,563	4,169	2,315,766			
2004	1,525,097	526,460	182,887	3,307	2,237,751	136,847	4,246	2,378,844			
2005	1,573,145	543,310	183,227	3,384	2,303,066	140,415	4,337	2,447,818			
2006	1,622,045	556,416	187,827	3,464	2,369,753	144,053	4,418	2,518,224			
2007	1,663,290	569,730	188,190	3,546	2,424,755	146,990	4,492	2,576,238			
2008	1,715,757	583,208	188,564	3,628	2,491,158	150,594	4,577	2,646,329			
2009	1,767,797	600,739	193,200	3,715	2,565,451	154,111	4,670	2,724,232			
2010	1,820,319	614,364	193,599	3,803	2,632,086	157,682	4,753	2,794,521			
2011	1,871,232	632,098	194,012	3,894	2,701,235	161,283	4,848	2,867,366			
2012	1,924,649	645,678	198,687	3,986	2,773,000	165,000	4,936	2,942,936			
2013	1,977,948	662,817	199,127	4,081	2,843,974	168,654	5,034	3,017,662			
2014	2,032,357	676,987	199,582	4,179	2,913,105	172,189	5,123	3,090,416			
2015	2,087,017	694,433	204,301	4,279	2,990,030	176,085	5,223	3,171,338			
2016	2,142,861	708,526	204,785	4,382	3,060,554	179,639	5,313	3,245,506			
2017	2,199,418	725,893	205,286	4,487	3,135,084	183,384	5,416	3,323,883			
2018	2,256,775	739,515	210,052	4,596	3,210,938	187,146	5,509	3,403,594			

Average Annual Compound Growth Rates:

1994-1998	3.6%	4.4%	12.2%	3.2%	4.3%	2.7%	1.6%	4.2%
1998-2002	4.6%	3.8%	12.4%	2.6%	4.9%	5.6%	4.4%	5.0%
1998-2018	3.2%	2.8%	3.2%	2.4%	3.1%	2.9%	2.4%	3.1%

[1] Forecast based on maximum annual cooling degree days for the period 1979 to 1998.  
 [2] Borrower's Own Use is projected to be 0.29 percent of Total Rural System Energy Sales based on the weighted average of Borrower's Own Use for the period 1993 to 1998.  
 [3] Borrower's Losses are projected to be 5.17 percent of Total Rural System Energy Sales based on the weighted average of Borrower's Losses for the period 1993 to 1998.

severe weather scenario energy requirements forecast to develop the extreme weather coincident peak demand scenario for Meade County. These coincident peaks were then totaled to arrive at Big Rivers' coincident peak. This forecast indicates that Big Rivers' coincident peak demand would reach 811.5 MW by 2018 given the assumptions mentioned herein. This would correlate to a 3.3 percent average annual increase over 1998. The severe weather peak demand scenario is shown in Table III-2.

### **Mild Weather Scenario**

To project rural system energy requirements for this scenario, the historical minimum numbers of heating and cooling degree days were inserted into the residential energy sales per consumer equation for each member system. The small commercial, large commercial, and other miscellaneous classes were generally assumed to be non-weather sensitive. The mild weather energy requirements scenario is shown in Table III-3. This forecast indicates that Big Rivers' rural system energy requirements would reach 3,275,741 MWh by 2018 given the assumptions mentioned herein, which would be a 2.9 percent average annual increase from 1998.

To develop the mild weather coincident peak demand scenario, the maximum load factor experienced from 1974 to 1998 for each of the cooperatives except for Meade County was applied to the base case energy requirements forecast. The average load factor experienced from 1991 to 1998 was applied to the mild weather scenario energy requirements forecast to develop the mild weather coincident peak demand scenario for Meade County. These coincident peaks were then totaled to arrive at Big Rivers' coincident peak. This forecast indicates that Big Rivers' coincident peak demand would reach 711.7 MW by 2018 given the assumptions mentioned herein. This would correlate to a 2.6 percent average annual increase over 1998. The severe weather peak demand scenario is shown in Table III-4.

### **ECONOMIC UNCERTAINTY**

High and low scenarios for both energy requirements and peak demand were developed for each member system based on optimistic and pessimistic macroeconomic assumptions. Most ranges for independent variables included in the uncertainty analyses were developed using the @Risk software product made by Palisade Corporation. This software provides Monte Carlo simulation capabilities that were used in this study to develop 90 percent confidence ranges of projected sustained growth in variables such as population, income and employment. The historical mean and standard deviation of annual growth in each variable were used to simulate a normal distribution of

Table III-2

**SEVERE WEATHER SCENARIO  
PEAK DEMAND AND LOAD FACTOR**

Big Rivers Electric Corporation

	Year	System Energy Requirements		System Peak Demand [1]		System Load Factor
		(MWh)	Percent Increase	(kW)	Percent Increase	Percent
	1994	1,571,485	-	359,832	-	49.9
	1995	1,666,327	6.0%	387,914	7.8%	49.0
	1996	1,728,680	3.7%	382,214	-1.5%	51.6
	1997	1,755,841	1.6%	409,524	7.1%	48.9
Historical	1998	1,849,759	5.3%	425,035	3.8%	49.7
Projected	1999	1,993,663 [2]	7.8%	483,265 [3]	13.7%	47.1
	2000	2,077,602	4.2%	503,567	4.2%	47.1
	2001	2,145,998	3.3%	520,139	3.3%	47.1
	2002	2,206,702	2.8%	534,823	2.8%	47.1
	2003	2,276,169	3.1%	551,667	3.1%	47.1
	2004	2,338,347	2.7%	566,692	2.7%	47.1
	2005	2,406,388	2.9%	583,149	2.9%	47.1
	2006	2,475,871	2.9%	599,973	2.9%	47.1
	2007	2,532,940	2.3%	613,765	2.3%	47.1
	2008	2,602,053	2.7%	630,464	2.7%	47.1
	2009	2,678,996	3.0%	649,098	3.0%	47.1
	2010	2,748,343	2.6%	665,842	2.6%	47.1
	2011	2,820,205	2.6%	683,256	2.6%	47.1
	2012	2,894,751	2.6%	701,349	2.6%	47.1
	2013	2,968,461	2.5%	719,209	2.5%	47.1
	2014	3,040,167	2.4%	736,581	2.4%	47.1
	2015	3,120,053	2.6%	755,972	2.6%	47.1
	2016	3,193,155	2.3%	773,680	2.3%	47.1
	2017	3,270,461	2.4%	792,410	2.4%	47.1
	2018	3,349,098	2.4%	811,487	2.4%	47.1

## Average Annual Compound Growth Rates:

1994-1998	4.2%	4.3%
1998-2003	4.5%	5.9%
1998-2018	3.0%	3.3%

[1] Coincident peak demand.

[2] Base case System Energy Requirements.

[3] Forecasted demand is the sum of the forecasted peak demands for the individual cooperatives.



Table III-3

**MILD WEATHER SCENARIO  
ENERGY SALES BY CONSUMER CLASS**  
Big Rivers Electric Corporation

Year	Small			Total Large		Public Street & Highway		Total Sales	Own Use	Losses	Total Rural Energy Requirements
	Residential	Commercial	Commercial	Commercial	Commercial	Street & Highway	Sales				
1994	1,040,652	360,612	70,298	2,509	1,474,072	3,226	94,166	1,571,485			
1995	1,101,490	381,680	69,478	2,641	1,555,288	3,334	107,704	1,666,327			
1996	1,144,623	389,824	78,668	2,661	1,615,776	3,599	109,305	1,728,680			
1997	1,137,995	411,100	92,414	2,802	1,644,311	3,305	108,225	1,755,841			
Historical 1998	1,199,476	427,835	111,516	2,846	1,741,673	3,439	104,647	1,849,759			
Projected 1999	1,212,724 [1]	453,993	151,330	2,919	1,820,956	3,720 [2]	116,100 [3]	1,940,776			
2000	1,257,200	467,495	171,126	2,994	1,898,815	3,839	120,774	2,023,428			
2001	1,297,482	484,181	177,662	3,071	1,962,415	3,939	124,323	2,090,676			
2002	1,340,543	497,050	177,990	3,150	2,018,734	4,013	127,500	2,150,247			
2003	1,384,046	513,549	182,558	3,231	2,083,384	4,099	131,110	2,218,594			
2004	1,428,498	526,460	182,887	3,307	2,141,152	4,175	134,337	2,279,664			
2005	1,474,541	543,310	183,227	3,384	2,204,463	4,264	137,847	2,346,574			
2006	1,521,461	556,416	187,827	3,464	2,269,169	4,344	141,427	2,414,940			
2007	1,560,687	569,730	188,190	3,546	2,322,153	4,417	144,306	2,470,875			
2008	1,611,088	583,208	188,564	3,629	2,386,489	4,500	147,850	2,538,839			
2009	1,661,092	600,739	193,200	3,715	2,456,746	4,592	151,310	2,614,648			
2010	1,711,608	614,364	193,599	3,803	2,523,374	4,674	154,825	2,682,873			
2011	1,760,581	632,098	194,012	3,894	2,590,585	4,767	158,380	2,753,732			
2012	1,812,038	645,678	198,667	3,986	2,660,390	4,854	162,050	2,827,294			
2013	1,863,399	662,817	199,127	4,081	2,728,424	4,951	165,658	2,900,033			
2014	1,915,801	676,987	199,582	4,179	2,796,549	5,038	169,145	2,970,732			
2015	1,968,495	694,433	204,301	4,279	2,871,508	5,138	172,994	3,049,639			
2016	2,022,323	708,526	204,785	4,382	2,940,016	5,226	176,499	3,121,742			
2017	2,076,880	725,893	205,286	4,487	3,012,546	5,328	180,196	3,198,070			
2018	2,132,248	739,515	210,052	4,596	3,086,411	5,420	183,909	3,275,741			

Average Annual Compound Growth Rates:

1994-1998	3.6%	12.2%	3.2%	4.3%	1.6%	2.7%	4.2%
1998-2002	2.8%	12.4%	2.6%	3.8%	3.9%	5.1%	3.8%
1998-2018	2.9%	3.2%	2.4%	2.9%	2.3%	2.9%	2.9%

[1] Forecast based on maximum annual cooling degree days for the period 1979 to 1998.

[2] Borrower's Own Use is projected to be 0.29 percent of Total Rural System Energy Sales based on the weighted average of Borrower's Own Use for the period 1993 to 1998.

[3] Borrower's Losses are projected to be 5.17 percent of Total Rural System Energy Sales based on the weighted average of Borrower's Losses for the period 1993 to 1998.

Table III-4

**MILD WEATHER SCENARIO  
PEAK DEMAND AND LOAD FACTOR**

Big Rivers Electric Corporation

	Year	System Energy Requirements		System Peak Demand [1]		System Load Factor
		(MWh)	Percent Increase	(kW)	Percent Increase*	Percent
	1994	1,571,485	-	359,832	-	49.9
	1995	1,666,327	6.0%	387,914	7.8%	49.0
	1996	1,728,680	3.7%	382,214	-1.5%	51.6
	1997	1,755,841	1.6%	409,524	7.1%	48.9
Historical	1998	1,849,759	5.3%	425,035	3.8%	49.7
Projected	1999	1,978,431 [2]	7.0%	422,710 [3]	-0.5%	53.4
	2000	2,061,844	4.2%	440,565	4.2%	53.4
	2001	2,129,822	3.3%	455,113	3.3%	53.4
	2002	2,190,099	2.8%	468,054	2.8%	53.4
	2003	2,259,132	3.2%	482,843	3.2%	53.4
	2004	2,320,868	2.7%	496,111	2.7%	53.4
	2005	2,388,462	2.9%	510,618	2.9%	53.4
	2006	2,457,488	2.9%	525,434	2.9%	53.4
	2007	2,514,092	2.3%	537,587	2.3%	53.4
	2008	2,582,734	2.7%	552,343	2.7%	53.4
	2009	2,659,197	3.0%	568,749	3.0%	53.4
	2010	2,728,055	2.6%	583,565	2.6%	53.4
	2011	2,799,581	2.6%	598,887	2.6%	53.4
	2012	2,873,788	2.7%	614,775	2.7%	53.4
	2013	2,947,153	2.6%	630,489	2.6%	53.4
	2014	3,018,511	2.4%	645,788	2.4%	53.4
	2015	3,098,044	2.6%	662,808	2.6%	53.4
	2016	3,170,789	2.3%	678,405	2.4%	53.4
	2017	3,247,734	2.4%	694,889	2.4%	53.4
	2018	3,326,005	2.4%	711,654	2.4%	53.4

Average Annual Compound Growth Rates:

1994-1998	4.2%	4.3%
1998-2002	4.3%	2.4%
1998-2018	3.0%	2.6%

[1] Coincident peak demand.

[2] Base case System Energy Requirements.

[3] Forecasted demand is the sum of the forecasted peak demands for the individual cooperatives.

expected growth rates. Using the output describing this distribution, the growth rate that marks the top 5 percent of possible growth rates and the growth rate that marks the bottom 5 percent of possible growth rates were ascertained for each independent variable. These projected high and low growth rates were used to replace the independent variables in the original econometric models, and thus generate appropriate confidence intervals.

### **Optimistic Macroeconomic Assumptions**

The results of the rural system optimistic economic scenario for energy requirements is shown in Table III-5. This forecast indicates Big Rivers' system energy requirements would reach 4,210,797 MWh by 2018 given the assumptions discussed in the member reports. This equates to average annual growth of 4.2 percent.

To develop the corresponding peak demand scenario, the base case system load factor forecast for each of the cooperatives was applied to the optimistic macroeconomics energy requirements forecast. These coincident peaks were then totaled to arrive at Big Rivers' coincident peak. This forecast indicates that Big Rivers' coincident peak demand would reach 966.4 MW by 2018 given the assumptions mentioned herein. This would correlate to a 4.2 percent average annual increase over 1998. The severe weather peak demand scenario is shown in Table III-6.

### **Pessimistic Macroeconomic Assumptions**

The results of the rural system pessimistic economic scenario for energy requirements is shown in Table III-7. This forecast indicates Big Rivers' system energy requirements would be approximately 2,808,213 MWh by 2018 given the assumptions discussed in the member reports. This equates to average annual growth of 2.1 percent.

To develop the corresponding peak demand scenario, the base case system load factor forecast for each of the cooperatives was applied to the pessimistic macroeconomics energy requirements forecast. These coincident peaks were then totaled to arrive at Big Rivers' coincident peak. This forecast indicates that Big Rivers' coincident peak demand would reach 523.9 MW by 2018 given the assumptions mentioned herein. This would correlate to a 1.1 percent average annual increase over 1998. The severe weather peak demand scenario is shown in Table III-8.

Table III-5

**OPTIMISTIC MACROECONOMIC ASSUMPTIONS SCENARIO  
ENERGY SALES BY CONSUMER CLASS**  
Big Rivers Electric Corporation

Year	Residential	Small Commercial	Total Large Commercial	Public Street & Highway	Total Sales	Own Use	Losses	Total Rural Energy Requirements
1984	1,040,852	360,612	70,288	2,509	1,474,072	3,226	94,186	1,571,485
1985	1,101,490	381,680	69,478	2,641	1,555,288	3,334	107,704	1,666,327
1986	1,144,623	389,924	78,668	2,661	1,615,776	3,599	109,305	1,728,680
1987	1,137,995	411,100	92,414	2,802	1,644,311	3,305	108,225	1,755,841
1988	1,189,478	427,835	111,516	2,846	1,741,673	3,439	104,647	1,849,759
1989	1,269,932 [1]	455,638 [2]	151,588 [2]	2,922	1,880,088	3,754 [3]	117,724 [4]	2,001,567
2000	1,328,968	478,595	171,893	3,000	1,982,247	3,896	123,221	2,109,364
2001	1,380,009	501,217	178,558	3,081	2,072,865	4,012	127,639	2,204,516
2002	1,452,712	524,536	179,215	3,164	2,159,627	4,112	131,871	2,295,610
2003	1,516,879	548,573	184,164	3,249	2,252,865	4,214	136,389	2,393,468
2004	1,582,694	573,350	184,907	3,328	2,344,280	4,316	140,739	2,489,335
2005	1,650,880	598,891	185,699	3,410	2,438,880	4,421	145,230	2,588,531
2006	1,720,871	625,222	190,791	3,494	2,540,177	4,528	150,019	2,694,723
2007	1,792,773	652,366	191,687	3,580	2,640,405	4,638	154,558	2,799,599
2008	1,867,513	680,352	192,840	3,668	2,744,174	4,747	159,404	2,908,325
2009	1,943,196	709,208	197,904	3,758	2,854,067	4,855	164,031	3,022,952
2010	2,020,807	736,963	198,983	3,851	2,962,604	4,963	168,972	3,136,540
2011	2,101,794	769,647	200,132	3,946	3,075,519	5,074	174,083	3,254,676
2012	2,185,232	801,293	205,803	4,044	3,196,172	5,189	179,575	3,380,937
2013	2,271,235	833,933	208,903	4,145	3,316,216	5,304	184,934	3,508,455
2014	2,360,973	867,603	208,287	4,248	3,441,110	5,421	190,458	3,636,989
2015	2,453,050	902,338	214,008	4,353	3,573,749	5,541	196,274	3,775,584
2016	2,548,952	938,177	215,574	4,462	3,707,164	5,661	202,055	3,914,881
2017	2,647,568	975,157	217,240	4,573	3,844,537	5,784	207,969	4,058,290
2018	2,749,408	1,013,320	223,263	4,688	3,990,677	5,910	214,211	4,210,797

**Average Annual Compound Growth Rates:**

1984-1988	3.6%	4.4%	12.2%	3.2%	4.3%	1.6%	2.7%	4.2%
1988-2002	4.9%	5.2%	12.6%	2.7%	5.5%	4.6%	6.0%	5.5%
1988-2018	4.2%	4.4%	3.5%	2.5%	4.2%	2.7%	3.6%	4.2%

[1] Residential energy requirements forecast based on average annual compound growth in population of 0.9 percent, average annual compound growth in per capita income of 1.8 percent, and average annual compound growth in residential electricity prices of -5.2 percent.

[2] Small commercial energy requirements forecast based on average annual compound growth in total employment of 1.9 percent and average annual compound growth of small commercial electricity price of -5.2 percent.

[3] Borrower's Own Use is projected to be 0.29 percent of Total Rural System Energy Sales based on the weighted average of Borrower's Own Use for the period 1983 to 1988.

[4] Borrower's Losses are projected to be 5.17 percent of Total Rural System Energy Sales based on the weighted average of Borrower's Losses for the period 1983 to 1988.

Table III-6

**OPTIMISTIC MACROECONOMIC ASSUMPTIONS SCENARIO  
PEAK DEMAND AND LOAD FACTOR  
Big Rivers Electric Corporation**

	Year	System Energy Requirements		System Peak Demand [1]		System Load Factor
		(MWh)	Percent Increase	(kW)	Percent Increase	Percent
	1994	1,571,485	-	359,832	-	49.9
	1995	1,666,327	6.0%	387,914	7.8%	49.0
	1996	1,728,680	3.7%	382,214	-1.5%	51.6
	1997	1,755,841	1.6%	409,524	7.1%	48.9
Historical	1998	1,849,759	5.3%	425,035	3.8%	49.7
Projected	1999	2,001,567 [2]	8.2%	459,134 [3]	8.0%	49.8
	2000	2,109,364	5.4%	481,558	4.9%	50.0
	2001	2,204,516	4.5%	502,090	4.3%	50.1
	2002	2,295,610	4.1%	523,144	4.2%	50.1
	2003	2,393,468	4.3%	545,790	4.3%	50.1
	2004	2,489,335	4.0%	567,949	4.1%	50.0
	2005	2,588,531	4.0%	590,894	4.0%	50.0
	2006	2,694,723	4.1%	615,465	4.2%	50.0
	2007	2,799,599	3.9%	639,713	3.9%	50.0
	2008	2,908,325	3.9%	664,865	3.9%	49.9
	2009	3,022,952	3.9%	691,407	4.0%	49.9
	2010	3,136,540	3.8%	717,683	3.8%	49.9
	2011	3,254,676	3.8%	745,026	3.8%	49.9
	2012	3,380,937	3.9%	774,265	3.9%	49.8
	2013	3,506,455	3.7%	803,321	3.8%	49.8
	2014	3,636,989	3.7%	833,532	3.8%	49.8
	2015	3,775,564	3.8%	865,627	3.9%	49.8
	2016	3,914,881	3.7%	897,872	3.7%	49.8
	2017	4,058,290	3.7%	931,074	3.7%	49.8
	2018	4,210,797	3.8%	966,390	3.8%	49.7
Average Annual Compound Growth Rates:						
	1994-1998	4.2%		4.3%		
	1998-2002	5.5%		5.3%		
	1998-2018	4.2%		4.2%		

[1] Coincident peak demand.

[2] Optimistic Economic Scenario Rural System Energy Requirements.

Table III-7

**PESSIMISTIC MACROECONOMIC ASSUMPTIONS SCENARIO  
ENERGY SALES BY CONSUMER CLASS**

Big Rivers Electric Corporation

Year	Residential	Small Commercial	Total Large Commercial	Public Street & Highway	Total Sales	Own Use	Losses	Total Rural Energy Requirements
1994	1,040,852	360,612	70,298	2,509	1,474,072	3,226	94,186	1,571,485
1995	1,101,490	381,680	69,478	2,641	1,555,288	3,334	107,704	1,666,327
1996	1,144,823	389,824	78,668	2,661	1,615,776	3,599	109,305	1,728,680
1997	1,137,995	411,100	92,414	2,802	1,644,311	3,305	108,225	1,755,841
Historical 1998	1,199,476	427,835	111,516	2,846	1,741,673	3,439	104,947	1,849,759
Projected 1999	1,225,113 [1]	447,917 [2]	151,050	2,904	1,826,985	3,656 [3]	114,878 [4]	1,945,519
2000	1,253,596	460,248	170,557	2,964	1,887,366	3,739	116,100	2,009,205
2001	1,271,533	475,527	176,814	3,027	1,926,902	3,775	119,821	2,050,498
2002	1,290,108	487,490	176,814	3,091	1,957,503	3,782	121,070	2,082,355
2003	1,308,817	503,472	181,064	3,157	1,998,510	3,800	122,894	2,123,003
2004	1,327,901	516,216	181,064	3,217	2,028,398	3,806	123,856	2,156,060
2005	1,347,985	532,991	181,064	3,278	2,065,319	3,823	125,243	2,194,385
2006	1,368,289	546,539	185,314	3,342	2,103,484	3,830	126,629	2,233,943
2007	1,389,509	564,151	185,314	3,407	2,142,380	3,847	127,842	2,274,069
2008	1,411,901	576,564	185,314	3,474	2,178,252	3,854	129,056	2,312,162
2009	1,434,431	587,087	189,583	3,543	2,224,624	3,869	130,160	2,358,653
2010	1,457,393	612,466	189,583	3,614	2,263,037	3,873	131,271	2,398,181
2011	1,482,107	631,995	189,583	3,686	2,307,351	3,888	132,614	2,443,854
2012	1,507,822	648,346	193,813	3,761	2,353,742	3,895	134,021	2,491,658
2013	1,534,326	668,933	193,813	3,838	2,400,911	3,911	135,347	2,540,169
2014	1,562,693	686,440	193,813	3,918	2,446,864	3,917	136,507	2,587,288
2015	1,591,539	708,199	198,063	3,999	2,501,800	3,934	138,000	2,643,734
2016	1,622,234	726,931	198,063	4,083	2,551,310	3,939	139,114	2,694,364
2017	1,653,615	749,924	198,063	4,169	2,605,771	3,956	140,388	2,750,115
2018	1,686,102	769,945	202,312	4,257	2,662,618	3,963	141,632	2,808,213

Average Annual Compound Growth Rates:

1994-1998	3.6%	4.4%	12.2%	3.2%	4.3%	1.6%	2.7%	4.2%
1998-2002	1.8%	3.3%	12.2%	2.1%	3.0%	2.4%	3.7%	3.0%
1998-2018	1.7%	3.0%	3.0%	2.0%	2.1%	0.7%	1.5%	2.1%

[1] Residential energy requirements forecast based on average annual compound growth in population of -0.4 percent, average annual compound growth in per capita income of 0.2 percent, and average annual compound growth in residential electricity prices of 3.2 percent.

[2] Small commercial energy requirements forecast based on average annual compound growth in total employment of 0.3 percent and average annual compound growth of small commercial electricity prices of 2.8 percent.

[3] Borrower's Own Use is projected to be 0.29 percent of Total Rural System Energy Sales based on the weighted average of Borrower's Own Use for the period 1993 to 1998.

[4] Borrower's Losses are projected to be 5.17 percent of Total Rural System Energy Sales based on the weighted average of Borrower's Losses for the period 1993 to 1998.

Table III-8

**PESSIMISTIC MACROECONOMIC ASSUMPTIONS SCENARIO  
PEAK DEMAND AND LOAD FACTOR**  
Big Rivers Electric Corporation

	Year	System Energy Requirements		System Peak Demand [1]		System Load Factor
		(MWh)	Percent Increase	(kW)	Percent Increase	Percent
	1994	1,571,485	-	359,832	-	49.9
	1995	1,666,327	6.0%	387,914	7.8%	49.0
	1996	1,728,680	3.7%	382,214	-1.5%	51.6
	1997	1,755,841	1.6%	409,524	7.1%	48.9
Historical	1998	1,849,759	5.3%	425,035	3.8%	49.7
Projected	1999	1,932,180	4.5%	443,080	4.2%	49.8
	2000	1,981,423	2.5%	452,075	2.0%	50.0
	2001	2,007,429	1.3%	456,876	1.1%	50.2
	2002	2,022,853	0.8%	460,559	0.8%	50.1
	2003	2,045,767	1.1%	465,991	1.2%	50.1
	2004	2,059,817	0.7%	469,343	0.7%	50.1
	2005	2,078,073	0.9%	473,675	0.9%	50.1
	2006	2,096,126	0.9%	477,965	0.9%	50.1
	2007	2,113,482	0.8%	482,069	0.9%	50.0
	2008	2,127,525	0.7%	485,415	0.7%	50.0
	2009	2,148,586	1.0%	490,403	1.0%	50.0
	2010	2,161,015	0.6%	493,367	0.6%	50.0
	2011	2,178,130	0.8%	497,422	0.8%	50.0
	2012	2,195,620	0.8%	501,576	0.8%	50.0
	2013	2,211,998	0.7%	505,455	0.8%	50.0
	2014	2,225,196	0.6%	508,595	0.6%	49.9
	2015	2,245,689	0.9%	513,437	1.0%	49.9
	2016	2,258,346	0.6%	516,446	0.6%	49.9
	2017	2,273,955	0.7%	520,139	0.7%	49.9
	2018	2,289,689	0.7%	523,869	0.7%	49.9
Average Annual Compound Growth Rates:						
	1994-1998	4.2%		4.3%		
	1998-2002	2.3%		2.0%		
	1998-2018	1.1%		1.1%		

[1] Coincident peak demand.

[2] Pessimistic Economic Scenario Rural System Energy Requirements.

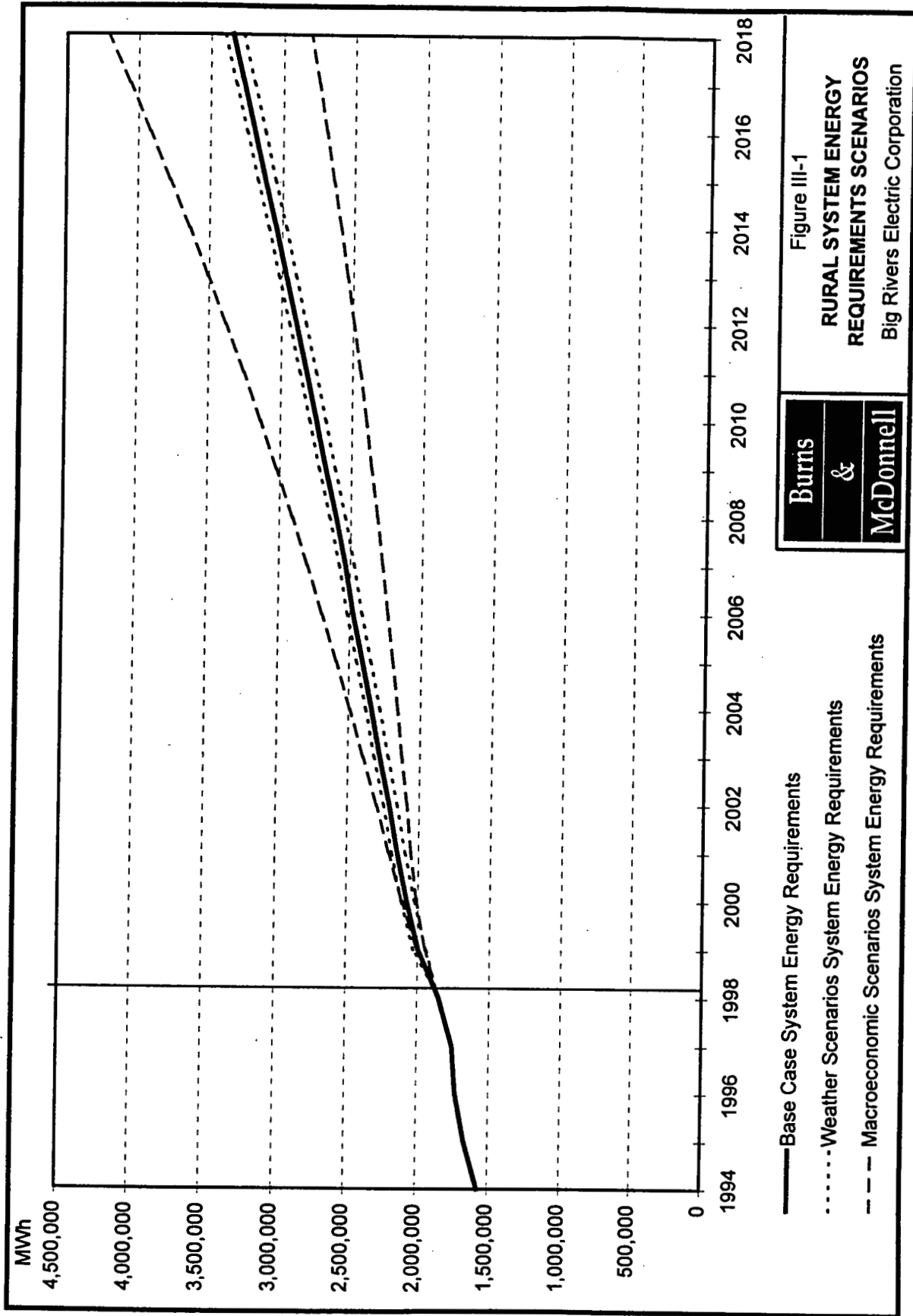
## SUMMARY OF WEATHER AND ECONOMIC UNCERTAINTY ANALYSES

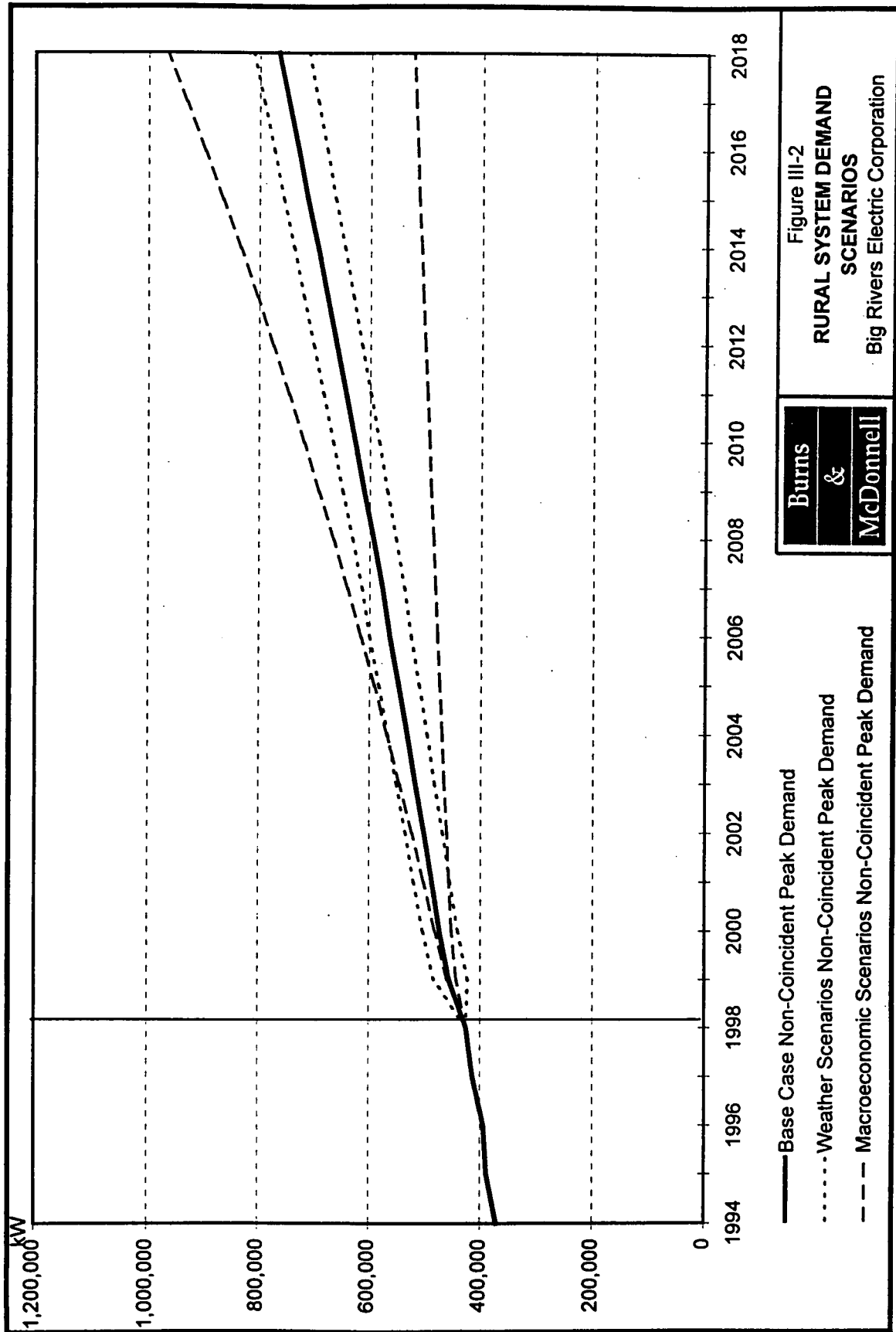
The summary of the weather and economic uncertainty analyses for rural-system energy requirements is shown in Figure III-1. The figure indicates that rural system electricity sales are expected to be much more dependent on future economic conditions than year-to-year weather variation. The optimistic economic assumptions scenario calls for growth of 4.2 percent per year, with total energy requirements reaching 4,210,797 MWh by 2018. The pessimistic economic assumptions scenario calls for growth of 2.1 percent per year, with total energy requirements of approximately 2,808,213 MWh by 2018.

Figure III-2 summarizes the weather and economic uncertainty analyses for rural-system, non-coincident peak demand. The figure indicates the high level of possible year-to-year variations in peak demand as a result of weather conditions although economic conditions still show greater year-to-year variation. The optimistic economic assumption scenario shows peak demand reaching 966.4 MW by 2018, while the pessimistic economic assumptions scenario shows peak demand at approximately 523.9 MW by 2018.

\* \* \* \*







**APPENDIX A – DATA SOURCES**

## APPENDIX F DATA SOURCES

Data for the economic forecasting equations were collected from various sources. This Appendix provides a listing of the data collected and the sources and contacts for the data.

### HISTORICAL SYSTEM DATA

Historical numbers of consumers, electricity sales, and revenues by consumer class as well as total system energy requirements and peak demand data were obtained from computerized RUS Form 7 databases provided by the cooperative and Big Rivers.

### POPULATION, EMPLOYMENT AND INCOME

Historical and projected population, employment, and income data for the respective counties were obtained from the Woods & Poole Economics, Inc. database at the following address:

Mr. Martin Holdrich  
Woods & Poole Economics, Inc.  
1794 Columbia Road, NW  
Washington, DC 20009  
(202) 332-7111  
<http://www.cgs.niu.edu/tecdoc>

National Planning Association (NPA) Data Services  
1424 16<sup>th</sup> Street NW, Suite 700  
Washington, DC 20036  
(202) 884-7634  
<http://www.npdata.com>

University of Louisville  
College of Business & Public Administration  
Louisville, KY 40292  
<http://cbpa.louisville.edu>

The county data was weighted by each cooperative's estimate of the percentage of residential consumers served by the cooperative as compared to the total number of residential consumers in each of the counties in the cooperative's service area.

### WEATHER

Historical monthly heating and cooling degree day data for the Evansville, Indiana weather station were provided by Big Rivers. The forecasts of heating and cooling degree days are based on an averages of the historical data.

## **INFLATION INDEX**

The historical and projected Implicit Price Deflator for Personal Consumption Expenditures (PCE) (1981-2010) was obtained from Woods & Poole Economics, Inc. The projected PCE data (1995 to 2010) was forecast by Woods & Poole Economics, Inc., and historical PCE data (1981 to 1994) was taken from the U.S. Department of Commerce.

## **ELECTRICITY PRICE PROJECTIONS**

Electricity price projections for each cooperative were developed by applying projected escalation rates to historical average retail electricity prices for Big Rivers. The electricity price development and projections are described in Part II of this report and shown in Table II-3.

\*\*\*\*\*



BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

1  
2  
3  
4 **Item 23)** Please provide all manuals, treatises, and/or regulatory decisions that were  
5 relied upon by BREC in the preparation of proposed Rates Schedule 9 and that are not  
6 privileged and/or immune from disclosure under the work product doctrine.

7  
8 **Response)** Big Rivers relied upon Title II of the Public Utility Regulatory Policies  
9 Act of 1978, Section 210 of the Federal Power Act, 18 C.F.R. Part 292 and 807 KAR  
10 5:054. As stated in Big Rivers Electric Corporation's response to Willamette Industries,  
11 Inc.'s Initial Request for Information of October 7, 1999, Item 14, Big Rivers also relied  
12 upon the experience and advise of counsel and other representatives which are protected  
13 from disclosure by the attorney-client privilege and the attorney work product rule.  
14 Additionally, Big Rivers reviewed East Kentucky Power Cooperative, Inc., The Union  
15 Light, Heat and Power Company, and American Electric Power's cogeneration and small  
16 power production facilities tariffs, copies of which are attached.

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18 **Witness)** Counsel  
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P.S.C. KY. NO. 3  
Cancels P.S.C. KY. NO. 2

EAST KENTUCKY POWER COOPERATIVE, INC.  
OF  
WINCHESTER, KENTUCKY

RATES, RULES AND REGULATIONS FOR PURCHASING  
ELECTRIC POWER AND ENERGY  
AT  
VARIOUS LOCATIONS THROUGHOUT KENTUCKY  
FROM  
QUALIFIED COGENERATION AND  
SMALL POWER PRODUCTION FACILITIES

PUBLIC SERVICE COMMISSION  
OF KENTUCKY  
EFFECTIVE

FILED WITH PUBLIC SERVICE COMMISSION  
KENTUCKY

SEP 01 1994

PURSUANT TO 807 KAR 5.011,  
SECTION 9 (1)

BY: Jordan P. Neal  
FOR THE PUBLIC SERVICE COMMISSION

ISSUED July 18, 1994

EFFECTIVE September 1, 1994

ISSUED BY EAST KENTUCKY POWER COOPERATIVE, INC.

By Roy M. Palk  
Roy M. Palk  
President and Chief Executive Officer



East Kentucky Power Cooperative

COGENERATION AND SMALL POWER PRODUCTION  
POWER PURCHASE RATE SCHEDULE  
OVER 100 kW

AVAILABILITY

Available only to qualified cogeneration or small power production facilities with a design capacity of over 100 kW which have executed a contract with East Kentucky Power Cooperative and one of EKPC's member distribution systems for the purchase of electric power by East Kentucky Power Cooperative.

RATES

1. Capacity

a. \$28.46 per kW per year if cogenerator or small power producer is dispatched by East Kentucky Power Cooperative.

b. \$0.00433 per kWh if cogenerator or small power producer is not dispatched by East Kentucky Power Cooperative.

PUBLIC SERVICE COMMISSION  
OF KENTUCKY  
EFFECTIVE

SEP 01 1994

PURSUANT TO 807 KAR 6011,  
SECTION 9(1)  
BY: Jordan C. Neal  
FOR THE PUBLIC SERVICE COMMISSION

2. Energy

A base payment per kWh is listed below for on-peak and off-peak hours for the winter and summer seasons for the appropriate calendar year:

RATE PER kWh

	<u>Winter</u>		<u>Summer</u>	
<u>Year</u>	<u>On-Peak</u>	<u>Off-Peak</u>	<u>On-peak</u>	<u>Off-Peak</u>
1994	.01501	.01466	.01544	.01427
1995	.01706	.01629	.01915	.01535
1996	.01825	.01728	.02038	.01596
1997	.01927	.01792	.02086	.01623
1998	.02434	.02116	.02558	.01713
1999	.02605	.02249	.02762	.01847

DATE OF ISSUE JULY 18, 1994

DATE EFFECTIVE SEPTEMBER 1, 1994

ISSUED BY

Ray M. Falk

TITLE President and Chief Executive Officer

For Area Served  
P.S.C. NO. 3  
Original Sheet NO. 2  
Cancelling P.S.C. NO. 2  
Original Sheet NO. 2

East Kentucky Power Cooperative

The on-peak and off-peak energy rates are applicable during the hours listed below for each season:

Winter (October - April)

On-Peak 7:00 a.m. - 12:00 noon  
5:00 p.m. - 10:00 p.m.

Off-Peak 12:00 noon - 5:00 p.m.  
10:00 p.m. - 7:00 a.m.

Summer (May - September)

On-Peak 10:00 a.m. - 10:00 p.m.

Off-Peak 10:00 p.m. - 10:00 a.m.

PUBLIC SERVICE COMMISSION  
OF KENTUCKY  
EFFECTIVE

SEP 01 1994

PURSUANT TO 807 KAR 6011,  
SECTION 9 (1)

BY: Jordan C. Neal  
FOR THE PUBLIC SERVICE COMMISSION

TERMS AND CONDITIONS

1. All power from a Qualifying Facility (QF) will be sold only to East Kentucky Power Cooperative.
2. Seller must provide good quality electric power within a reasonable range of voltage, frequency, flicker, harmonic currents, and power factor.
3. Qualifying Facility (QF) shall provide reasonable protection for EKPC and the member cooperative's system.
4. Qualifying Facility (QF) shall design, construct, install, own, operate, and maintain the Qualifying Facility in accordance with all applicable codes, laws, regulations, and generally accepted utility practices.
5. Qualifying Facility shall reimburse EKPC and its member cooperatives for all costs incurred as a result of interconnecting with the QF, including operation, maintenance, administration, and billing.

DATE OF ISSUE JULY 18, 1994

DATE EFFECTIVE SEPTEMBER 1, 1994

ISSUED BY

Ray M. Park

TITLE President and Chief Executive Officer

Item 23

Page 4 of 21

For Area Served  
P.S.C. NO. 3  
Original Sheet NO. 3  
Cancelling P.S.C. NO. 2  
Original Sheet NO. 3

East Kentucky Power Cooperative

6. Qualifying Facility shall obtain insurance in the following minimum amounts for each occurrence:
  - a. Public Liability for Bodily Injury - \$1,000,000.00
  - b. Property Damage - \$500,000.00
7. Initial contract term shall be for a minimum of twenty years.
8. Qualifying Facilities proposing to supply as available (non-firm) electric power shall not be entitled to a capacity payment.

PUBLIC SERVICE COMMISSION  
OF KENTUCKY  
EFFECTIVE

SEP 01 1994

PURSUANT TO 807 KAR 5.011.  
SECTION 9(1)

BY: *Jordan C. Steel*  
FOR THE PUBLIC SERVICE COMMISSION

DATE OF ISSUE JULY 18, 1994 DATE EFFECTIVE SEPTEMBER 1, 1994

ISSUED BY *Ray M. Talk* TITLE President and Chief Executive Officer

East Kentucky Power Cooperative

**COGENERATION AND SMALL POWER PRODUCTION  
POWER PURCHASE RATE SCHEDULE  
LESS THAN 100 KW**

**AVAILABILITY**

Available only to qualified cogeneration or small power production facilities with a design capacity of less than 100 kW which have executed a contract with East Kentucky Power Cooperative and one of EKPC's member distribution systems for the purchase of electric power by East Kentucky Power Cooperative.

**RATES**

1. Capacity - \$0.00433 per kWh
2. Energy

A base payment per kWh is listed below for the appropriate calendar year:

**RATE PER kWh**

Year	<u>Winter</u>		<u>Summer</u>	
	<u>On-Peak</u>	<u>Off-Peak</u>	<u>On-peak</u>	<u>Off-Peak</u>
1994	.01501	.01466	.01544	.01427
1995	.01706	.01629	.01915	.01535
1996	.01825	.01728	.02038	.01596
1997	.01927	.01792	.02086	.01623
1998	.02434	.02116	.02558	.01713
1999	.02605	.02249	.02762	.01847

PUBLIC SERVICE COMMISSION  
OF KENTUCKY  
EFFECTIVE

SEP 01 1994

PURSUANT TO 807 KAR 5.011,  
SECTION 9(1)

BY: Jordan C. Neal  
FOR THE PUBLIC SERVICE COMMISSION

DATE OF ISSUE JULY 18, 1994

DATE EFFECTIVE SEPTEMBER 1, 1994

ISSUED BY

Amy M. Park

TITLE President and Chief Executive Officer

For Area Served  
P.S.C. NO. 3  
Original Sheet NO. 5  
Cancelling P.S.C. NO. 2  
Original Sheet NO. 5

East Kentucky Power Cooperative

The on-peak and off-peak energy rates are applicable during the hours listed below for each season:

Winter (October - April)

On-Peak 7:00 a.m. - 12:00 noon  
5:00 p.m. - 10:00 p.m.

Off-Peak 12:00 noon - 5:00 p.m.  
10:00 p.m. - 7:00 a.m.

Summer (May - September)

On-Peak 10:00 a.m. - 10:00 p.m.

Off-Peak 10:00 p.m. - 10:00 a.m.

PUBLIC SERVICE COMMISSION  
OF KENTUCKY  
EFFECTIVE

SEP 01 1994

PURSUANT TO 807 KAR 5.011,  
SECTION 9 (1)

BY: Jordan C. Neal  
FOR THE PUBLIC SERVICE COMMISSION

TERMS AND CONDITIONS

1. All power from a Qualifying Facility (QF) will be sold only to East Kentucky Power Cooperative.
2. Seller must provide good quality electric power within a reasonable range of voltage, frequency, flicker, harmonic currents, and power factor.
3. Qualifying Facility (QF) shall provide reasonable protection for EKPC and the member cooperative's system.
4. Qualifying Facility (QF) shall design, construct, install, own, operate, and maintain the Qualifying Facility in accordance with all applicable codes, laws, regulations, and generally accepted utility practices.
5. Qualifying Facility shall reimburse EKPC and its member cooperatives for all costs incurred as a result of interconnecting with the QF, including operation, maintenance, administration, and billing.

DATE OF ISSUE JULY 18, 1994

DATE EFFECTIVE SEPTEMBER 1, 1994

ISSUED BY

Roy M. Park

TITLE President and Chief Executive Officer

For Area Served  
P.S.C. NO. 3  
Original Sheet NO. 6  
Cancelling P.S.C. NO. 2  
Original Sheet NO. 6

East Kentucky Power Cooperative

6. Qualifying Facility shall obtain insurance in the following minimum amounts for each occurrence:
  - a. Public Liability for Bodily Injury - \$1,000,000.00
  - b. Property Damage - \$500,000.00
7. Initial contract term shall be for a minimum of twenty years.
8. Qualifying Facilities proposing to supply as available (non-firm) electric power shall not be entitled to a capacity payment.

PUBLIC SERVICE COMMISSION  
OF KENTUCKY  
EFFECTIVE

SEP 01 1994

PURSUANT TO 807 KAR 5:011,  
SECTION 9(1)

BY: Jordan C. Cook  
FOR THE PUBLIC SERVICE COMMISSION

DATE OF ISSUE JULY 18, 1994

DATE EFFECTIVE SEPTEMBER 1, 1994

ISSUED BY

Ray M. Park

TITLE President and Chief Executive Officer

The Union Light, Heat and Power Company  
107 Brent Spence Square  
Covington, Kentucky 41011

KY. P.S.C. NO. 4

Original Sheet No. 93  
Page 1 of 2

COGENERATION AND SMALL POWER  
PRODUCTION SALE AND PURCHASE TARIFF-100 kW OR LESS

**APPLICABILITY**

The provisions of this tariff are applicable to qualifying cogeneration and small power production facilities as adopted by the Kentucky Public Service Commission (Ky. PSC), Regulation 807 KAR 5:054.

**DEFINITIONS**

Definitions of the following terms are as adopted by the Ky. PSC, 807 KAR 5:054 - Section 2:

- |                                     |                          |
|-------------------------------------|--------------------------|
| (1) Qualifying Facility             | (7) Interconnection Cost |
| (2) Cogeneration Facility           | (8) Supplementary Power  |
| (3) Small Power Production Facility | (9) Back-up Power        |
| (4) Purchase                        | (10) Interruptible Power |
| (5) Sale                            | (11) Maintenance Power   |
| (6) Avoided Cost                    | (12) System              |

**OBLIGATIONS**

- (1) Purchases  
The utility shall purchase from qualifying facilities in accordance with 807 KAR 5:054 - Sections 6 and 7.
- (2) Sales  
The utility shall sell to qualifying facilities in accordance with 807 KAR 5:054 - Section 6.
- (3) Interconnections  
The utility shall make interconnections with qualifying facilities as may be necessary to accomplish purchases or sales and the qualifying facility will pay for the interconnection costs in accordance with 807 KAR 5:054 - Section 6.
- (4) System Emergencies  
During system emergencies the utility may discontinue purchases and sales or the qualifying facilities may be required to provide energy or capacity in accordance with 807 KAR 5:054 - Section 6.

**STANDARDS FOR OPERATING RELIABILITY**

The technical requirements necessary for operating reliability are set forth in the Company's procedure entitled "Guideline Technical Requirements for Parallel Operation of Customer Generation on the Transmission System."

Issued by authority of an Order of the Kentucky Public Service Commission in Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

The Union Light, Heat and Power Company  
107 Brent Spence Square  
Covington, Kentucky 41011

KY. P.S.C. NO. 4

Original Sheet No. 93  
Page 2 of 2

**RATE SCHEDULES**

Rates for Purchases from qualifying facilities:

Purchase Rate shall be 1.95¢/kWh for all kilowatt-hours delivered.

Rates for Sales to qualifying facilities will be accomplished through existing tariff schedules on file with the Ky. PSC.

**SERVICE REGULATIONS, TERMS AND CONDITIONS**

The QF shall enter into a written contract with the Company. Such contract shall set forth any specific arrangements between the parties based on the individual circumstances so involved.

The supplying and billing for service and all conditions applying thereto, are subject to the jurisdiction of the Kentucky Public Service Commission, and to Company's Service Regulations currently in effect, as filed with the Public Service Commission of Kentucky.

Issued by authority of an Order of the Kentucky Public Service Commission in Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

Item 23  
Page 10 of 21



The Union Light, Heat and Power Company  
107 Brent Spence Square  
Covington, Kentucky 41011

KY. P.S.C. NO. 4

Original Sheet No. 94  
Page 1 of 3

COGENERATION AND SMALL POWER  
PRODUCTION SALE AND PURCHASE TARIFF-GREATER THAN 100 kW

**APPLICABILITY**

The provisions of this tariff are applicable to qualifying cogeneration and small power production facilities as adopted by the Kentucky Public Service Commission (Ky. PSC), Regulation 807 KAR 5:054.

**DEFINITIONS**

Definitions of the following terms are as adopted by the Ky. PSC, 807 KAR 5:054 - Section 2:

- |                                     |                          |
|-------------------------------------|--------------------------|
| (1) Qualifying Facility             | (7) Interconnection Cost |
| (2) Cogeneration Facility           | (8) Supplementary Power  |
| (3) Small Power Production Facility | (9) Back-up Power        |
| (4) Purchase                        | (10) Interruptible Power |
| (5) Sale                            | (11) Maintenance Power   |
| (6) Avoided Cost                    | (12) System              |

**OBLIGATIONS**

(1) Purchases

The utility shall purchase from qualifying facilities in accordance with 807 KAR 5:054 - Sections 6 and 7.

(2) Sales

The utility shall sell to qualifying facilities in accordance with 807 KAR 5:054 - Section 6.

(3) Interconnections

The utility shall make interconnections with qualifying facilities as may be necessary to accomplish purchases or sales and the qualifying facility will pay for the interconnection costs in accordance with 807 KAR 5:054 - Section 6.

(4) System Emergencies

During system emergencies the utility may discontinue purchases and sales or the qualifying facilities may be required to provide energy or capacity in accordance with 807 KAR 5:054 - Section 6.

**STANDARDS FOR OPERATING RELIABILITY**

The technical requirements necessary for operating reliability are set forth in the Company's procedure entitled "Guideline Technical Requirements for Parallel Operation of Customer Generation on the Transmission System."

**RATE SCHEDULES**

Rates for Purchases from qualifying facilities:

The Purchase Rate for all kilowatt-hours delivered shall be determined according to the standard calculation of avoided cost as set forth herein.

Rates for Sales to qualifying facilities will be accomplished through existing tariff schedules on file with the Ky. PSC.

Issued by authority of an Order of the Kentucky Public Service Commission dated Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

Item 23  
Page 11 of 21

The Union Light, Heat and Power Company  
 107 Brent Spence Square  
 Covington, Kentucky 41011 KY. P.S.C. NO. 4

Original Sheet No. 94  
 Page 2 of 3

#### Calculation Of Avoided Cost

The methodology to determine avoided cost involves the use of the Electric Generation Expansion Analysis System (EGEAS) to develop differential long run marginal costs between The Cincinnati Gas & Electric Company's current optimum base case generation expansion plan and an optimum expansion plan including the QF. The key feature of the methodology is the complete reoptimization of the base case generation expansion plan including capital costs, fuel cost, and operation and maintenance expenses to insure that the ratepayer will remain indifferent toward the capacity and energy cost of any cogenerator or small power producer.

EGEAS is a proprietary generation expansion model written by the Massachusetts Institute of Technology under contract to the Electric Power Research Institute. The model uses a technique called dynamic programming to devise the optimum generation expansion plan. The dynamic programming module typically tests over 1,000 different generation expansion plans in arriving at the single best plan.

The first step is the preparation of a base case using CG&E's current generation expansion plan. A change case is then prepared which incorporates both the technical characteristics including unit capacity and reliability and the duration of the contract of the qualifying facility (QF). With the QF entered as a committed unit, the EGEAS model reoptimizes the generation expansion plan by adjusting both utility unit sizes and timing to find the new least cost strategy. By specifying the cogenerator as a zero cost, must run source of energy, the model accumulates all long run marginal cost differences between the base case and the change case. Finally a levelized annuity based on the length of contract is calculated from the long run marginal cost. Transmission costs are added to yield the total avoided cost. The total avoided cost is then divided into capacity and energy components by subtracting the marginal energy cost from the total cost. The remainder is the avoided capacity cost. The method assumes that the avoided cost and thus the levelized payment to the qualifying facility begins on the commercial operation date of the QF.

Further explanation of this tariff and methodology can be obtained from the Company.

#### Sample Rates

To illustrate the methodology, Table 1 below illustrates the results of applying the avoided cost calculation to a cogenerator whose capacity is 100 MW and whose availability is 86%. The actual credit depends on the capacity, availability and contract length of the prospective QF. The minimum capacity required to qualify for the capacity component is 1.5 MW.

<u>Cogen/Spp Contract Length</u>	<u>Capacity Component</u>	<u>Weighted Energy Component</u>	<u>Total Cogen/Spp Credit (¢/kWh All Hours)</u>
5 Yr.	0.81¢/kWh	1.95¢/kWh	2.76¢/kWh
10 Yr.	1.16¢/kWh	1.95¢/kWh	3.11¢/kWh
15 Yr.	1.63¢/kWh	1.95¢/kWh	3.58¢/kWh
20 Yr.	2.92¢/kWh	1.95¢/kWh	4.87¢/kWh

Issued by authority of an Order of the Kentucky Public Service Commission dated Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

Item 23  
 Page 12 of 21

The Union Light, Heat and Power Company  
107 Brent Spence Square  
Covington, Kentucky 41011

KY. P.S.C. NO. 4

Original Sheet No. 94  
Page 3 of 3

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**SERVICE REGULATIONS, TERMS AND CONDITIONS**

The QF shall enter into a written contract with the Company. Such contract shall set forth any specific arrangements between the parties based on the individual circumstances so involved.

The supplying and billing for service and all conditions applying thereto, are subject to the jurisdiction of the Kentucky Public Service Commission, and to Company's Service Regulations currently in effect, as filed with the Public Service Commission of Kentucky.

---

Issued by authority of an Order of the Kentucky Public Service Commission dated Case No. 9299.

Issued: February 27, 1986

Effective: November 25, 1985

Issued by W. H. Dickhoner, President

Item 23

Page 13 of 21

**TARIFF COGEN/SPP I**  
(Cogeneration and/or Small Power Production--100 KW or Less)

AVAILABILITY OF SERVICE.

This tariff is available to customers with cogeneration and/or small power production (COGEN/SPP) facilities which qualify under Section 210 of the Public Utility Regulatory Policies Act of 1978, and which have a total design capacity of 100 KW or less. Such facilities shall be designed to operate properly in parallel with the Company's system without adversely affecting the operation of equipment and services of the Company and its customers, and without presenting safety hazards to the Company and customer personnel.

The customer has the following options under this tariff, which will affect the determination of energy and capacity and the monthly metering charges:

- Option 1 - The customer does not sell any energy or capacity to the Company, and purchases from the Company its net load requirements, as determined by appropriate meters located at one delivery point.
- Option 2 - The customer sells to the Company the energy and average on-peak capacity produced by the customer's qualifying COGEN/SPP facilities in excess of the customer's total load, and purchases from the Company its net load requirements, as determined by appropriate meters located at one delivery point.
- Option 3 - The customer sells to the Company the total energy and average on-peak capacity produced by the customer's qualifying COGEN/SPP facilities, while simultaneously purchasing from the Company its total load requirements, as determined by appropriate meters located at one delivery point.

MONTHLY CHARGES FOR DELIVERY FROM THE COMPANY TO THE CUSTOMER.

Such charges for energy, and demand where applicable, to serve the customer's net or total load shall be determined according to the tariff appropriate for the customer, except that Option 1 and Option 2 customers with cogeneration and/or small power production facilities having a total design capacity of more than 10 KW shall be served under demand-metered tariffs, and except that the monthly billing demand under such tariffs shall be the highest determined for the current and previous two billing periods. The above three-month billing demand provision shall not apply under Option 3.

ADDITIONAL CHARGES.

There shall be additional charges to cover the cost of special metering, safety equipment and other local facilities installed by the Company due to COGEN/SPP facilities, as follows:

Monthly Metering Charge

The additional monthly charge for special metering facilities shall be as follows:

- Option 1 - Where the customer does not sell electricity to the Company, a detent shall be used on the energy meter to prevent reverse rotation. The cost of such meter alteration shall be paid by the customer as part of the Local Facilities Charge.
- Options 2 & 3 - Where meters are used to measure the excess or total energy and average on-peak capacity purchased by the Company:

	<u>Single Phase</u>	<u>Polyphase</u>
	\$	\$
Standard Measurement	5.90	11.20
T.O.D. Measurement	15.00	20.25

(Cont'd. On Sheet No. 17-2)

DATE OF ISSUE January 30, 1996 DATE EFFECTIVE Service rendered on and after April 1, 1991  
ISSUED BY E. K. WAGNER DIRECTOR OF REGULATORY AFFAIRS ASHLAND, KENTUCKY  
NAME TITLE ADDRESS  
*Issued by authority of an Order of the Public Service Commission in Case No. 91-066 dated October 28, 1991*

TARIFF COGEN/SPP I (Cont'd.)  
(Cogeneration and/or Small Power Production--100 KW or Less)

ADDITIONAL CHARGES. (Cont'd.)

Monthly Metering Charge. (Cont'd.)

Under Option 3, when metering voltage for COGEN/SPP facilities is the same as the Company's delivery voltage, the customer shall, at his option, either route the COGEN/SPP totalized output leads through the metering point, or make available at the metering point for the use of the Company and, as specified by the Company, metering current leads which will enable the Company to measure adequately the total electrical energy and average capacity produced by the qualifying COGEN/SPP facilities, as well as to measure the electrical energy consumption and capacity requirements of the customer's total load. When metering voltage for COGEN/SPP facilities is different from the Company's delivery voltage, metering requirements and charges shall be determined specifically for each use.

Local Facilities Charge

Additional charges to cover "interconnection costs" incurred by the Company shall be determined by the Company for each case and collected from the customer. For Options 2 and 3, the cost of metering facilities shall be covered by the Monthly Metering Charge and shall not be included in the Local Facilities Charge. The customer shall make a one-time payment for the Local Facilities Charge at the time of installation of the required additional facilities, or, at his option, up to 12 consecutive equal monthly payments reflecting an annual interest charge as determined by the Company, but not to exceed the cost of the Company's most recent issue of long-term debt. If the customer elects the installment payment option, the Company may require a reasonable security deposit.

MONTHLY CREDITS OR PAYMENTS FOR ENERGY AND CAPACITY DELIVERIES.

Energy Credit

The following credits or payments from the Company to the customer shall apply for the electrical energy delivered to the Company:

Standard Meter - All KWH .....	1.57 cents/KWH
T.O.D. Meter	
On-Peak KWH .....	1.72 cents/ KWH
Off-Peak KWH .....	1.45 cents/KWH

Capacity Credit

If the customer contracts to deliver or produce a specified excess or total average capacity during the monthly billing period (monthly contract capacity), or a specified excess or total average capacity during the on-peak monthly billing period (on-peak contract capacity), then the following capacity credits or payment from the Company to the customer shall apply:

If standard energy meters are used,

A. \$0.95/KW/month, times the lowest of:

- (1) monthly contract capacity, or
- (2) current month metered average capacity, i.e., KWH delivered to the Company or produced by COGEN/SPP facilities divided by 730, or
- (3) lowest average capacity metered during the previous two months if less than monthly contract capacity.

(Cont'd. On Sheet 17-3)

DATE OF ISSUE January 30, 1996 DATE EFFECTIVE Service rendered on and after April 1, 1991

ISSUED BY E. K. WAGNER DIRECTOR OF REGULATORY AFFAIRS ASHLAND, KENTUCKY  
NAME TITLE ADDRESS

Issued by authority of an Order of the Public Service Commission in Case No. 91-066 dated October 28, 1991

TARIFF COGEN/SPP I (Cont'd.)  
 (Cogeneration and/or Small Power Production--100 KW or Less)

MONTHLY CREDITS OR PAYMENTS FOR ENERGY AND CAPACITY DELIVERIES. (Cont'd.)

Capacity Credit (Cont'd.)

If T.O.D. energy meters are used,

B. \$2.10/KW/month, times the lowest of:

- (1) on-peak contract capacity, or
- (2) current month on-peak metered average capacity, i.e., on-peak KWH delivered to the Company or produced by COGEN/SPP facilities divided by 327, or
- (3) lowest on-peak average capacity metered during the previous two months, if less than on-peak contract capacity.

The above energy and capacity credit rates are subject to revisions from time to time as approved by the Commission.

ON-PEAK AND OFF-PEAK PERIODS.

The on-peak period shall be defined as starting at 7:00A.M. and ending at 9:00 P.M., local time, Monday through Friday.

The off-peak period shall be defined as starting at 9:00 P.M. and ending at 7:00A.M., local time, Monday through Friday, and all hours of Saturday and Sunday.

CHARGES FOR CANCELLATION OR NON PERFORMANCE CONTRACT.

If the customer should, for a period in excess of six months, discontinue or substantially reduce for any reason the operation of cogeneration and/or small power production facilities which were the basis for the monthly contract capacity or the on-peak contract capacity, the customer shall be liable to the Company for an amount equal to the total difference between the actual payments for capacity paid to the customer and the payments for capacity that would have been paid to the customer pursuant to this Tariff COGEN/SPP I or any successor tariff. The Company shall be entitled to interest on such amount at the rate of the Company's most recent issue of long-term debt at the effective date of the contract.

TERM OF CONTRACT.

Contracts under this tariff shall be made for a period not less than one year.

DATE OF ISSUE August 22, 1997 DATE EFFECTIVE Service rendered on and after September 29, 1997  
 ISSUED BY E. K. WAGNER DIRECTOR OF REGULATORY AFFAIRS ASHLAND, KENTUCKY  
 NAME TITLE ADDRESS  
 Issued by authority of an Order of the Public Service Commission in Case No. 97-215 dated September 22, 1997

TARIFF COGEN/SPP II  
(Cogeneration and/or Small Power Production--Over 100 KW)

AVAILABILITY OF SERVICE.

This tariff is available to customers with cogeneration and/or small power production (COGEN/SPP) facilities which qualify under Section 210 of the Public Utility Regulatory Policies Act of 1978, and which have a total design capacity of over 100 KW. Such facilities shall be designed to operate properly in parallel with the Company's system without adversely affecting the operation of equipment and services of the Company and its customers, and without presenting safety hazards to the Company and customer personnel.

The customer has the following options under this tariff, which will affect the determination of energy and capacity and the monthly metering charges:

- Option 1 - The customer does not sell any energy or capacity to the Company, and purchases from the Company its net load requirements, as determined by appropriate meters located at one delivery point.
- Option 2 - The customer sells to the Company the energy and average on-peak capacity produced by the customer's qualifying COGEN/SPP facilities in excess of the customer's total load, and purchases from the Company its net load requirements, as determined by appropriate meters located at one delivery point.
- Option 3 - The customer sells to the Company the total energy and average on-peak capacity produced by the customer's qualifying COGEN/SPP facilities, while simultaneously purchasing from the Company its total load requirements, as determined by appropriate meters located at one delivery point.

MONTHLY CHARGES FOR DELIVERY FROM THE COMPANY TO THE CUSTOMER.

Such charges for energy, and demand where applicable, to serve the customer's net or total load shall be determined according to the tariff appropriate for the customer, except that Option 1 and Option 2 customers shall be served under demand-metered tariffs, and except that the monthly billing demand under such tariffs shall be the highest determined for the current and previous two billing periods. The above three-month billing demand provision shall not apply under Option 3.

ADDITIONAL CHARGES.

There shall be additional charges to cover the cost of special metering, safety equipment and other local facilities installed by the Company due to COGEN/SPP facilities, as follows:

Monthly Metering Charge

The additional monthly charge for special metering facilities shall be as follows:

- Option 1 - Where the customer does not sell electricity to the Company, a detent shall be used on the energy meter to prevent reverse rotation. The cost of such meter alteration shall be paid by the customer as part of the Local Facilities Charge.
- Options 2 & 3 - Where meters are used to measure the excess or total energy and average on-peak capacity purchased by the Company:

	<u>Single Phase</u>	<u>Polyphase</u>
	\$	\$
Standard Measurement	5.90	11.20
T.O.D. Measurement	15.00	20.25

(Cont'd. On Sheet No. 18-2)

DATE OF ISSUE January 30, 1996 DATE EFFECTIVE Service rendered on and after April 1, 1991  
 ISSUED BY E. K. WAGNER DIRECTOR OF REGULATORY AFFAIRS ASHLAND, KENTUCKY  
 NAME TITLE ADDRESS  
 Issued by authority of an Order of the Public Service Commission in Case No. 91-066 dated October 28, 1991

TARIFF COGEN/SPP II (Cont'd.)  
(Cogeneration and/or Small Power Production—Over 100 KW)

ADDITIONAL CHARGES. (Cont'd.)

Monthly Metering Charge (Cont'd)

Under Option 3, when metering voltage for COGEN/SPP facilities is the same as the Company's delivery voltage, the customer shall, at his option, either route the COGEN/SPP totalized output leads through the metering point, or make available at the metering point for the use of the Company and, as specified by the Company, metering current leads which will enable the Company to measure adequately the total electrical energy and average capacity produced by the qualifying COGEN/SPP facilities, as well as to measure the electrical energy consumption and capacity requirements of the customer's total load. When metering voltage for COGEN/SPP facilities is different from the Company's delivery voltage, metering requirements and charges shall be determined specifically for each case.

Local Facilities Charge

Additional charges to cover "interconnection costs" incurred by the Company shall be determined by the Company for each case and collected from the customer. For Options 2 and 3, the cost of metering facilities shall be covered by the Monthly Metering Charge and shall not be included in the Local Facilities Charge. The customer shall make a one-time payment for the Local Facilities Charge at the time of installation of the required additional facilities, or, at his option, up to 12 consecutive equal monthly payments reflecting an annual interest charge as determined by the Company, but not to exceed the cost of the Company's most recent issue of long-term debt. If the customer elects the installment payment option, the Company may require a reasonable security deposit.

MONTHLY CREDITS OR PAYMENTS FOR ENERGY AND CAPACITY DELIVERIES.

Energy Credit

The following credits or payments from the Company to the customer shall apply for the electrical energy delivered to the Company:

Standard Meter - All KWH .....	1.57 cents/KWH
T.O.D. Meter	
On-Peak KWH .....	1.72 cents/ KWH
Off-Peak KWH .....	1.45 cents/KWH

Capacity Credit

If the customer contracts to deliver or produce a specified excess or total average capacity during the monthly billing period (monthly contract capacity), or a specified excess or total average capacity during the on-peak monthly billing period (on-peak contract capacity), then the following capacity credits or payment from the Company to the customer shall apply:

If standard energy meters are used,

A. \$0.95/KW/month, times the lowest of:

- (1) monthly contract capacity, or
- (2) current month metered average capacity, i.e., KWH delivered to the Company or produced by COGEN/SPP facilities divided by 730, or
- (3) lowest average capacity metered during the previous two months if less than monthly contract capacity.

(Cont'd. On Sheet 18-3)

DATE OF ISSUE January 30, 1996 DATE EFFECTIVE Service rendered on and after April 1, 1991  
ISSUED BY E. K. WAGNER DIRECTOR OF REGULATORY AFFAIRS ASHLAND, KENTUCKY  
NAME TITLE ADDRESS  
Issued by authority of an Order of the Public Service Commission in Case No. 91-066 dated October 28, 1991



TARIFF COGEN/SPP II (Cont'd.)  
 (Cogeneration and/or Small Power Production--Over 100 KW)

MONTHLY CREDITS OR PAYMENTS FOR ENERGY AND CAPACITY DELIVERIES. (Cont'd.)

Capacity Credit (Cont'd.)

If T.O.D. energy meters are used,

B. \$2.10/KW/month, times the lowest of:

- (1) on-peak contract capacity, or
- (2) current month on-peak metered average capacity, i.e., on-peak KWH delivered to the Company or produced by COGEN/SPP facilities divided by 327, or
- (3) lowest on-peak average capacity metered during the previous two months, if less than on-peak contract capacity.

The above energy and capacity credit rates are subject to revisions from time to time as approved by the Commission.

ON-PEAK AND OFF-PEAK PERIODS.

The on-peak period shall be defined as starting at 7:00 A.M. and ending at 9:00 P.M., local time, Monday through Friday.

The off-peak period shall be defined as starting at 9:00 P.M. and ending at 7:00 A.M., local time, Monday through Friday, and all hours of Saturday and Sunday.

CHARGES FOR CANCELLATION OR NON PERFORMANCE CONTRACT.

If the customer should, for a period in excess of six months, discontinue or substantially reduce for any reason the operation of cogeneration and/or small power production facilities which were the basis for the monthly contract capacity or the on-peak contract capacity, the customer shall be liable to the Company for an amount equal to the total difference between the actual payments for capacity paid to the customer and the payments for capacity that would have been paid to the customer pursuant to this Tariff COGEN/SPP II or any successor tariff. The Company shall be entitled to interest on such amount at the rate of the Company's most recent issue of long-term debt at the effective date of the contract.

TERM OF CONTRACT.

Contracts under this tariff shall be made for a period not less than one year.

DATE OF ISSUE August 22, 1997 DATE EFFECTIVE Service rendered on and after September 29, 1997  
 ISSUED BY E. K. WAGNER DIRECTOR OF REGULATORY AFFAIRS ASHLAND, KENTUCKY  
 NAME TITLE ADDRESS  
Issued by authority of an Order of the Public Service Commission in Case No. 97-215 dated September 22, 1997

TARIFF S. S. C.  
(System Sales Clause)

APPLICABLE.

To Tariffs R.S., R.S.-L.M.-T.O.D., Experimental R.S.-T.O.D., S.G.S., M.G.S., Experimental M.G.S.-T.O.D., L.G.S., Q.P., C.I.P.-T.O.D., I.R.P., M.W., O.L., and S.L.

RATE.

1. When the monthly net revenues from system sales are above or below the monthly base net revenues from system sales, as provided in paragraph 3 below, an additional credit or charge equal to the product of the Kwhrs and a system sales adjustment factor (A) shall be made, where "A", calculated to the nearest 0.0001 mill per kilowatthour, is defined as set forth below.

$$\text{System Sales Adjustment Factor (A)} = (.5[T_m - T_b])/S_m$$

In the above formula "T" is Kentucky Power Company's (KPCo) monthly net revenues from system sales in the current (m) and base (b) periods and "S" is the Kwh sales in the current (m) period, all defined below.

2. The net revenue from American Electric Power (AEP) System deliveries to non-associated companies that are shared by AEP Member Companies, including KPCo, in proportion to their Member Load Ratio and as reported in the Federal Energy Regulatory Commission's Uniform System of Accounts under Account 447, Sales for Resale, shall consist of and be derived as follows:

- a. KPCo's Member Load Ratio share of total revenues from System sales as recorded in Account 447, less
- b. KPCo's Member Load Ratio share of total out-of-pocket costs incurred in supplying the power and energy for the deliveries in (a) above.

The out-of-pocket costs include all operating, maintenance, tax, transmission losses and other expenses that would not have been incurred if the power and energy had not been supplied for such deliveries, including demand and energy charges for power and energy supplied by Third Parties.

3. The base monthly net revenues from system sales are as follows:

Billing Month	Base Net Revenues from System Sales (Total Company Basis)
January	\$ 895,960
February	767,802
March	893,126
April	1,036,738
May	1,085,852
June	1,324,166
July	1,027,403
August	1,154,184
September	912,736
October	731,014
November	624,320
December	862,035

4. Sales (S) shall be equated to the sum of (a) generation (including energy produced by generating plants during the construction period), (b) purchase, and (c) interchange-in, less (d) energy associated with pumped storage operations, less (e) inter-system sales and less (f) total system losses.

5. The system sales adjustment factor shall be based upon estimated monthly revenues and costs for system sales, subject to subsequent adjustment upon final determination of actual revenues and costs.

(Cont'd. on Sheet No. 19-2)

DATE OF ISSUE January 30, 1996 DATE EFFECTIVE August 2, 1995

ISSUED BY E. K. WAGNER DIRECTOR OF RATES ASHLAND, KENTUCKY

NAME TITLE ADDRESS

Issued by authority of an Order of the Public Service Commission in Case No. 91-066 dated April 1, 1991

TARIFF S. S. C. (Cont'd.)  
(System Sales Clause)

6. The monthly System Sales Clause shall be filed with the Commission ten (10) days before it is scheduled to go into effect, along with all the necessary supporting data to justify the amount of the adjustments which shall include data and information as may be required by the Commission.

7. Copies of all documents required to be filed with the Commission under this regulation shall be open and made available for public inspection at the office of the Public Service Commission pursuant to the provisions of KRS 61.870 to 61.884.

DATE OF ISSUE January 30, 1996

DATE EFFECTIVE Service rendered on and after April 1, 1991

ISSUED BY E. K. WAGNER

DIRECTOR OF RATES

ASHLAND, KENTUCKY

NAME

TITLE

ADDRESS

Issued by authority of an Order of the Public Service Commission in Case No. 91-066 dated April 1, 1991



BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

1  
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3  
4 **Item 24)** Please prepare a log of all documents that are responsive to a request for  
5 information but have been withheld on the basis of the attorney-client privilege, attorney  
6 work product or other privilege or immunity from disclosure. The log should identify  
7 each document by a general description of the document, the date it was prepared, its  
8 author, recipients of the document, and the basis for the privilege or immunity under  
9 which the document has been withheld.

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11 **Response)** There are no documents responsive to this request.

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13 **Witness)** Counsel  
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BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

1  
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3  
4 **Item 25)** Please identify the circumstances that necessitated the purchase of  
5 emergency power as reflected in the invoices at Item 16, pages 7 and 10.

6  
7 **Response)** On Invoice No. 279 (Item 16, page 7), the emergency power purchased  
8 from Hoosier Energy, LG&E Energy, and SIGECO resulted from the outages of  
9 Henderson Station Two Unit 1 on June 1, 1999, and Wilson Unit 1 on June 25, 1999.  
10 On Invoice No. 274 (Item 16, page 10), the emergency power sold to LG&E Energy  
11 resulted from LG&E generation outages on June 3, June 21, and June 23, 1999.

12  
13 **Witness)** David Crockett  
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BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

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4 **Item 26)** Please provide a copy of BREC's Integrated Resource Plan identified in  
5 response to Request for Information Item 17.

6  
7 **Response)** Big Rivers will provide a copy of its Integrated Resource Plan as soon as it  
8 is available. Due to situations beyond Big Rivers' control, Big Rivers has requested and  
9 the Commission has approved a revised filing date of November 22, 1999. Big Rivers  
10 expects the Plan to be complete and filed with the Commission by that date with a copy  
11 forwarded to Willamette.

12  
13 **Witness)** C. William Blackburn  
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BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

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4 **Item 27)** Please provide a copy of each transmission service agreement with a term  
5 greater than one year to which Big Rivers is a party.

6  
7 **Response)** Big Rivers currently has transmission service agreements with one year or  
8 greater terms as follows:

9  
10 1. Transmission Line Agreement with Southern Illinois Power for use  
11 of Barkley to Ohio River 161 kV line (copy attached).

12  
13 2. Transmission Service and Interconnection Agreement with LG&E  
14 Parties (copy attached).

15  
16 3. Four long-term Firm Point-to-Point Transmission Service  
17 Agreements with LG&E Energy Marketing (copy attached).

18  
19 4. One long-term Firm Point-to-Point Transmission Service  
20 Agreement with Reliant Energy (copy attached).

21  
22 Big Rivers' Open Access Transmission Tariff is included under Item 2. In  
23 addition, there is an Interconnection Agreement with Hoosier Energy, Southern Illinois  
24 Power and Henderson Municipal Power & Light. Pursuant to this agreement, under some  
25 circumstances, Big Rivers may provide wheeling transmission services to Henderson  
26 Municipal Power & Light for delivery of its SEPA power purchases and wheeling  
27 services to Hoosier Energy and Southern Illinois Power for displacement power  
28 interchange between them. While transmission service may be provided under this  
29 agreement, the agreement dates back to 1968, has been amended on several occasions,  
30 and is not relevant to this case. Network transmission service is provided to LG&E  
31 Energy Marketing for Southwire and Alcan and is also provided to service Big Rivers'  
32 members' native load. The agreements providing for this service are the various  
33

BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

1  
2  
3  
4 contracts associated with the Big Rivers/LG&E Transaction Case No. 97-204 of which  
5 Willamette was a party.

6  
7 **Witness)** David Crockett  
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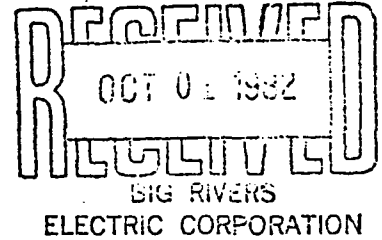


United States  
Department  
of Agriculture

Rural  
Electrification  
Administration

Washington  
D.C.  
20250

C#910



SEP 29 1982

SUBJECT: Kentucky 62 Big Rivers

TO: Mr. William H. Thorpe, Manager  
Big Rivers Electric Corporation  
P.O. Box 24  
Henderson, Kentucky 42420

The Transmission Line Agreement dated February 1, 1981, between Big Rivers Electric Corporation and Southern Illinois Power Cooperative was approved by the Rural Electrification Administration on September 24, 1982.

We are returning two copies herewith and retaining one copy for our records.

GILBERT BROYLES  
Power Systems Specialist  
Power Supply Division

Enclosures

U.S. DEPARTMENT OF AGRICULTURE  
RURAL ELECTRIFICATION ADMINISTRATION

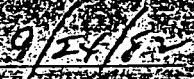
Kentucky 62 Big Rivers  
REBorrower Designation - Missouri's 50<sup>th</sup> Canal

THE WITHIN Transmission Line Agreement dated February 1981  
between Big Rivers Electric Corporation and Southern Missouri  
Power Cooperative providing for leasing by SWP Co. of the  
161 KV Line from Barkley Dam, Kentucky to the Ohio River

SUBMITTED BY THE ABOVE DESIGNATED BORROWER PURSUANT TO THE  
TERMS OF THE LOAN CONTRACT IS HEREBY APPROVED SOLELY FOR THE  
PURPOSES OF SUCH CONTRACT

  
FOR THE ADMINISTRATION

DATED



TRANSMISSION LINE AGREEMENT

THIS AGREEMENT, made and entered into this 1st day of February, 1981, by and between Southern Illinois Power Cooperative, an Illinois Corporation, of Marion, Illinois, hereinafter referred to as "S.I.P.C.", and Big Rivers Rural Electric Corporation, a Kentucky Corporation, of Henderson, Kentucky, hereinafter referred to as "Big Rivers";

WITNESSETH:

WHEREAS, the parties to this Agreement are each engaged in the production and sale of electric power and energy, and own and operate their respective generation and transmission facilities, selling such electric power and energy to their own respective customers, and,

WHEREAS, the above parties entered into a "Cost Sharing Agreement", dated May 1, 1968, relative to the construction of a 161 KV electric transmission river crossing across the Ohio River near Bay City, Illinois, which was constructed, and,

WHEREAS, S.I.P.C. built its own 161 KV electric transmission line to the said river crossing, and Big Rivers built its own 161 KV electric transmission line from Barkley Dam to the said river crossing, hereinafter referred to as the "Kentucky line", whereby the parties hereto have heretofore, since the construction of said lines and river crossing, been interconnected through said 161 KV electric transmission line, and,

WHEREAS, heretofore, the parties hereto have recognized the said transmission line as a joint-use transmission line, and,

WHEREAS, the parties hereto have, because of their respective circumstances now existing, determined that it is for the best interest of the parties to enter into this Agreement whereby S.I.P.C. formally leases from Big Rivers the right to use the said Ohio River transmission line crossing and the 161 KV electric transmission line from the said river crossing to its terminal at Barkley Dam, Kentucky, for the exclusive use of S.I.P.C. except,

of course, for the use to be made of said line by Big Rivers for its own internal system use, as hereinafter stated.

WHEREFORE, in consideration of the mutual covenants and agreements herein expressed, the parties hereto agree as follows:

S.I.P.C. AGREES:

1. To pay, on the 1st of each month hereafter, commencing April 1, 1981, to Big Rivers the sum of Two Thousand Dollars (\$2,000.00) as rental of said Kentucky line.

2. To maintain its own 161 KV electric transmission line north of the said river crossing in the State of Illinois for the use of Big Rivers under the provisions of the existing K.I.I. pool agreement dated April 1, 1968, as amended.

3. To continue to recognize and perform its obligations under the "Cost Sharing Agreement" hereinabove referred to, dated May 1, 1968, relative to the river crossing of said 161 KV electric transmission line.

4. To recognize and cooperate with Big Rivers in the use of the said Kentucky line to serve its own internal loads.

5. To hold Big Rivers harmless from any claims or actions of third parties or entities that might arise by reason of the use of said Kentucky line by S.I.P.C. under the provisions of this contract.

BIG RIVERS AGREES:

1. To continue to recognize its contractual obligations under the "Cost Sharing Agreement" dated May 1, 1968, relative to the Ohio River crossing of said electric transmission line.

2. To maintain and operate the said Kentucky line, pay taxes, insurance and all costs associated with the ownership of said transmission line.

3. To give S.I.P.C. exclusive right to use said transmission line and Ohio River crossing from the said river crossing at Bay City, Illinois, to the Barkley Dam terminal in Kentucky,



thereby leasing to S.I.P.C. all capacities of said transmission line not used by Big Rivers for its own internal loads. Big Rivers shall not, during the term of this contract, contract for the use of said line or any capacity therein outside of the internal loads of Big Rivers except those provided for under the April 1, 1968 KII Pool Agreement, as amended.

4. To furnish to S.I.P.C. use of said line, as hereinabove stated, so as to afford S.I.P.C. scheduling of electric power and energy with S.E.P.A. and T.V.A. to, from or through said Kentucky line from the said Ohio River crossing to the Barkley Dam terminal.

5. To permit the unrestricted use of said Kentucky line for carrier circuitry, as needed, including telemetering, digital analogs, etc., and the right to install said communications equipment as shall be necessary to accommodate S.I.P.C. in the use of said Kentucky line.

6. To cooperate with S.I.P.C. in its use of said communications and control systems on said Kentucky line.

7. To warrant that it is the owner of said Kentucky line, with full rights to lease the same, giving consideration to the fact that the said line is encumbered to the Rural Electrification Administration.

8. To hold the lessee, S.I.P.C., harmless from any and all claims and actions, at law or otherwise, of third parties or entities that arise out of the ownership of said electric transmission line during the term of this lease.

IT IS MUTUALLY AGREED:

1. That the term of this contract shall be perpetual, or until such time as S.I.P.C. shall no longer use said Kentucky line, and in such an event, S.I.P.C. shall give to Big Rivers 12 months' notice of its intention to terminate this contract.

2. Each of the parties hereto shall exercise every effort to cooperate with the other in affording the rights of each of the parties expressed in this agreement, as well as the joint

use of the said entire transmission line in Illinois and in Kentucky under the provisions of the K.I.I. pool agreement hereinabove referred to.

IN WITNESS WHEREOF, the parties hereto, pursuant to proper corporate authority of each of their respective boards of directors, have executed this agreement as of the day and year first above written.

SOUTHERN ILLINOIS POWER COOPERATIVE

BY: Milo F. Thurston  
President

ATTEST:

Archibald Hamilton  
Secretary  
(Corp. Seal)

BIG RIVERS RURAL ELECTRIC CORPORATION

BY: Morton Henshaw  
President

ATTEST:

Leta P. Drake  
Secretary  
(Corp. Seal)

**CONFIDENTIAL PROTECTED MATERIAL  
SUBJECT TO COURT ORDER**

TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

**TRANSMISSION SERVICE**

**and**

**INTERCONNECTION AGREEMENT**

**among**

**BIG RIVERS ELECTRIC CORPORATION**

**LG&E ENERGY MARKETING INC.,**

**WKE STATION TWO INC.,**

**and**

**WESTERN KENTUCKY ENERGY CORP.**

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SUBJECT TO COURT ORDER**

TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

This TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT ("Agreement") dated this 15<sup>th</sup> day of July, 1998, is among Big Rivers Electric Corporation, a Kentucky rural electric cooperative, together with its successors and permitted assigns, ("Big Rivers"), LG&E Energy Marketing Inc., an Oklahoma corporation ("LEM"), WKE Station Two Inc., a Kentucky corporation ("Station Two Subsidiary"), and Western Kentucky Energy Corp. ("WKEC") a Kentucky corporation (together with their successors and permitted assigns). Big Rivers, LEM, Station Two Subsidiary and WKEC are sometimes referred to herein collectively as "Parties" and individually as "Party." LEM, WKEC, and Station Two Subsidiary are sometimes referred to herein collectively as "LG&E Parties."

RECITALS

A. Big Rivers and LEM are parties to a Power Purchase Agreement dated July 15, 1998 ("Power Purchase Agreement"), Big Rivers, Station Two Subsidiary and others are parties to an Agreement and Amendments to Agreement dated July 15, 1998 ("Station Two Agreement") Big Rivers and WKEC are parties to a Lease and Operating Agreement dated July 15, (effective only during Phase II, by which time Western Kentucky Leasing Corp. ("Leaseco") expects to have

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

merged with and into WKEC, with WKEC as the surviving corporation), and Big Rivers, LEM, Leasoco, Station Two Subsidiary and WKEC are parties to an New Participation Agreement dated April 6, 1998 ("Participation Agreement"), each of which contemplate the execution and delivery of this Agreement, and Big Rivers and WKEC are also parties to a Facilities Operating Agreement dated (not applicable) (effective only during Phase I);

B. This Agreement, together with the Appendices and Exhibits hereto, is intended to establish the respective rights and obligations of Big Rivers and the LG&E Parties regarding (i) the LG&E Parties' firm and non-firm use of the Transmission System to make sales of electric capacity and energy to parties other than Big Rivers and (ii) regarding operation of the Transmission System, including the supply of generation-based Ancillary Services needed to support the operation of the Transmission System and its use by Big Rivers, the LG&E Parties and by Third Parties.

NOW, THEREFORE, in consideration of the mutual covenants of this Agreement, the Parties agree as follows:

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

Section 1: Exhibits to this Agreement

The following Exhibits are incorporated into and made a part of this Agreement:

Exhibit 1: Big Rivers Electric Corporation Open Access  
Transmission Tariff ("Tariff")

Exhibit 2: Available Transfer Capacity at Specified Points of  
Delivery

Exhibit 3: Description of Existing Transmission System

Exhibit 4: Real Power Loss Factor Calculation

Exhibit 5: Big Rivers' Delivery Point Metering

Exhibit 6: Maximum Net Dependable Capacity of Big Rivers'

Generating Plant Units as of the Effective Date

Except as modified herein, each of the provisions of each of Exhibits 1, 2, 3, 4, 5, and 6 shall be provisions of this Agreement.

Section 2: Definitions

As used herein, the following terms have the following meanings when used with initial capitalization:

2.1 "Affiliate" shall have the meaning set forth in Exhibit X to the Participation Agreement.

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

2.2 "Agreement" means this agreement between Big Rivers, LEM, Station Two Subsidiary and WKEC including all Exhibits hereto.

2.3 "Available Transfer Capacity" shall be as set out in Exhibit 2.

2.4 "Business Day" means the days Monday through Friday, excluding the following days observed as holidays: New Year's Day, Presidents' Day, Good Friday, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving, the Day After Thanksgiving, Christmas Eve, and Christmas Day.

2.5 "Default Rate" shall have the meaning set forth in Exhibit X to the Participation Agreement.

2.6 "ECAR" means the East Central Area Reliability Coordination Agreement.

2.7 "Effective Date" shall have the meaning set forth in Exhibit X to the Participation Agreement.

2.8 "Generating Plants" means those generation plants identified in Section 4.1 of this Agreement.

2.9 "Guaranty" has the meaning set forth in Exhibit X to the Participation Agreement.

2.10 "KRC" means Kentucky Revenue Cabinet.



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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

- 2.11 "Members" means Green River Electric Corporation, Henderson Union Electric Cooperative Corp., Jackson Purchase Electric Cooperative Corporation and Meade County Rural Electric Cooperative Corporation and any cooperative created by the consolidation of any two or more of the preceding, but excluding any other entity which may become a member of Big Rivers after the date first written above.
- 2.12 "Partial Year" means a period commencing on January 1 but ending prior to December 31, of the same year or commencing following January 1 but ending on or prior to December 31 of the same year.
- 2.13 "Phase I" shall have the meaning set forth in Exhibit X to the Participation Agreement.
- 2.14 "Phase II" shall have the meaning set forth in Exhibit X to the Participation Agreement.
- 2.15 "Point of Delivery" means that point on Big Rivers' Transmission System where capacity and energy transmitted by Big Rivers will be made available to the receiving party. Point of Delivery as used herein is intended to be synonymous with such term as used in the Tariff.

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

- 2.16 "Point of Receipt" means that point of interconnection on Big Rivers' Transmission System where capacity and energy will be made available to Big Rivers for subsequent transmission by Big Rivers on Big Rivers' Transmission System. Point of Receipt as used herein is intended to be synonymous with such term as used in the Tariff.
- 2.17 "Prudent Utility Practice" means any of the practices, methods, and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. Prudent Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region. Prudent Utility Practice as used herein is intended to be synonymous with the term "Good Utility Practice" as used in the Tariff.

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

- 2.18 "Reserved Capacity" means the maximum amount of capacity and energy that Big Rivers agrees to transmit for the Transmission Customer over Big Rivers' Transmission System between the Point(s) of Receipt and Point(s) of Delivery, expressed in terms of whole megawatts on a sixty (60) minute interval (commencing on the clock hour) basis. Reserved Capacity as used herein is intended to be synonymous with such term as used in the Tariff.
- 2.19 "Station Two" has the meaning set forth in Exhibit X to the Participation Agreement.
- 2.10 "Step-Up Facilities" has the meaning set forth in Section 5.1 of this Agreement.
- 2.21 "Tariff" means Big Rivers Electric Corporation's Open Access Transmission Tariff as set out in Exhibit 1 and as amended consistent with this Agreement.
- 2.22 "Term of this Agreement" is the period in which this Agreement is in effect, as determined in Section 3.1.
- 2.23 "Third Parties" means those transmission customers of Big Rivers other than the Transmission Customer and Big Rivers.
- 2.24 "Transmission Customer" means each of the LG&E Parties, individually and collectively, and shall have the same

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

meaning when used in Exhibit 1. During Phase II, WKEC will be the lessee and operator of the Generating Plants.

Station Two Subsidiary will be the operator of Station Two.

2.25 "Unit Output" means the amount of energy produced by the Generating Plants as such amount of energy may change from time-to-time measured by subtracting from the Generating Plants' gross generation meter readings, the plant auxiliary uses, including but not limited to, energy used for reserve auxiliary, start-up, main auxiliary, other plant transformers, maintenance, back-up, and supplemental uses and other uses in connection with operation of the Generating Plants and also subtracting the amount of energy taken by the City of Henderson, Kentucky from Station Two, at such time.

Except as otherwise set forth herein, all other terms with initial capitalization used in this Agreement shall have the definitions set forth for such terms in the Tariff.

Section 3: Effective Date and Termination

3.1 Term of this Agreement. This Agreement shall be effective from the Effective Date (i) through December 31 of that year which is

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

closest to the twenty-fifth (25th) anniversary of the Effective Date or (ii) until terminated pursuant to Sections 3.2(c), 3.2(d) or Section 16 or pursuant to the relevant provisions set forth in the Station Two Agreement.

3.2 Default and Termination.

(a) Subject to the terms and conditions of this Subsection 3.2, the following events shall constitute defaults:

(i) Failure of a Party to make any payments as and when due hereunder.

(ii) Failure of a Party to perform any material duty imposed on it by this Agreement.

(iii) Any attempt by a Party to transfer an interest in this Agreement in breach of Article 16 of the Participation Agreement;

(iv) Except with respect to the Big Rivers' Chapter 11 case pending before the U.S. Bankruptcy Court for the Western District of Kentucky, Case No. 96-41168, any filing of a petition in bankruptcy or insolvency, or for reorganization or arrangement under any bankruptcy or insolvency laws, or voluntarily taking advantage of any such laws by answer or otherwise or the commencement of involuntary proceedings under any such laws by a Party if such proceedings are not

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withdrawn or dismissed within 60 days after such institution (in which case the default occurs on the 61st day after filing);

(v) Assignment by a Party for the benefit of creditors;

(vi) Allowance by a Party of the appointment of a receiver or trustee of all or a material part of its property if such receiver or trustee is not discharged within 60 days after appointment (in which case the default occurs on the 61st day after appointment);  
or

(vii) Failure, inability or refusal of a Party to cure a default or breach under (A) during Phase I, the Power Purchase Agreement, the Cost Sharing Agreement, the Facilities Operating Agreement or the Participation Agreement which gives rise to a termination of such other Phase I Agreement or (B) during Phase II, the Lease, the Power Purchase Agreement or the Participation Agreement which gives rise to a termination of such Phase II Agreement; or during either Phase I or Phase II, any termination by a Party of any of the Agreements described above in breach or default thereof.

The Party in default under this Agreement shall be referred to as the "Defaulting Party," and the other Party shall be referred to as the "Non-Defaulting Party."

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

(b) The Non-Defaulting Party shall have the right to give the Defaulting Party a written notice of default ("Notice of Default"), which shall describe the default in reasonable detail and state the date by which the default must be cured, which shall be at least 30 days after receipt of the Notice of Default, except as to a default under Section 3.2(a)(i) which shall be 3 Business Days after receipt of notice, and under Section 3.2(a)(iii) through (vii), inclusive, as to which there will be no cure right. If within the 3 day period with respect to a default under Section 3.2(a)(i) the Defaulting Party cures the default, or if within the 30 day period with respect to defaults under Section 3.2(a)(ii) (that are not also defaults under Sections 3.2(a)(iii) through (vii), inclusive) the Defaulting Party cures the default or if the default under Section 3.2(a)(ii) is one that cannot in good faith be corrected within such 30 day period and the Defaulting Party certifies to the Non-Defaulting Party that it agrees to cure such default, certifies a reasonable date by which the cure will be effected which is agreed to by the Non-Defaulting Party, begins to correct the default within the 30 day period and continues corrective efforts with diligence until a cure is effected, the Notice of Default shall be inoperative and the rights of the Non-Defaulting Party under Section 3.2(c) shall not be triggered

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

with respect to such default under Section 3.2(a)(i) or Section 3.2(a)(ii), provided that the cure is effected within the period allotted or such extension as to which the Parties in good faith consent.

(c) If the Defaulting Party's default is one for which there is no cure right, or if the Defaulting Party fails or refuses to cure a default for which a cure right is available hereunder within the periods described above, the Non-Defaulting Party shall have, in addition to any rights such Party may have by law or otherwise, the right to terminate this Agreement upon 30 days' notice to the Defaulting Party of its intent to do so. The foregoing termination rights shall be in addition to, and not in lieu of, any rights to terminate this Agreement that are set forth in the Guaranty or the Station Two Agreement, which termination rights shall be cumulative.

(d) Notwithstanding anything contained elsewhere in this Agreement to the contrary and without extending any period otherwise specified in this Agreement for cure, in the event (1) a breach or default by the Defaulting Party under this Agreement is curable as contemplated in Section 3.2(b) of this Agreement and (2) such breach, or default is of such a nature that it cannot be remedied or cured by repair to or replacement of or construction of tangible assets or



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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

properties the use or enjoyment of which are required in order for the Non-Defaulting Party(s) to enjoy such material right or interests, then such breach or default must be cured within 180 days after notice thereof is delivered by the Non-Defaulting Party(s) or the Non-Defaulting Party shall have the right to terminate this Agreement upon two (2) Business Days prior written notice delivered to the Defaulting Party. Any re-occurrence of a breach or default of the type described in the preceding two sentences that arises from a common cause or a continuation of the same event or legal proceeding as the first occurrence following its remedy or cure by the Defaulting Party as described above shall also be grounds for termination of this Agreement if not once again cured or remedied within thirty (30) Business Days after notice thereof delivered by the Non-Defaulting Party. In the event the breach or default of the type described in the preceding three sentences reoccurs more than twice in any consecutive 365-day period, it shall be deemed to be no longer curable and the Non-Defaulting Party shall be entitled to exercise its termination rights provided for in (c) above, in addition to all of its other rights and remedies hereunder.

(e) If Big Rivers, on the one hand, or any of the LG&E Parties, on the other hand, ("X") shall fail to make any payment or

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

shall fail to perform any obligation under this Agreement, then the other Party ("Y") or any of its Affiliates will have the right (but not the obligation) without prior notice to X to perform such obligations and set-off the costs of such performance or the amount of any such past due payment owing to Y against any obligation of Y or any of its Affiliates owing to X or any of its Affiliates hereunder or under any other Phase II Agreement (whether or not matured).

(f) Except as expressly set forth elsewhere in this Subsection 3.2 or in any of the documents identified in the Recitals above, the obligations and rights of the parties under this Agreement and the agreements identified in the Recitals above, shall be independent and not be affected by either Party's performance or failure to perform under the other agreements.

Section 4: Points of Interconnection

4.1 Generating Plants. The Transmission System of Big Rivers is interconnected with the following generation plant disconnect switches for the high-voltage side of the unit step-up transformers:

PLANTS

Reid Combustion Turbine  
Robert D. Reid  
D.B. Wilson  
Kenneth C. Coleman

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

Robert D. Green  
Henderson Municipal Power & Light - Station Two

Big Rivers shall use all reasonable best efforts to remain interconnected with the above generation plant disconnect switches over the term of this Agreement.

4.2 Interconnected Utilities. The Transmission System is interconnected with the following entities and their respective points of interconnection:

Tennessee Valley Authority  
Shawnee Plant  
Marshall (2)  
Barkley (3)  
Paradise

Southern Illinois Power Cooperative  
Morganfield  
Livingston County

Louisville Gas & Electric Company  
Cloverport

Kentucky Utilities Company  
Hardinsburg  
D.B. Wilson

Southern Indiana Gas and Electric Company  
Henderson County Substation

Hoosier Energy Rural Electric Cooperative  
Kenneth C. Coleman

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

Big Rivers shall use all reasonable best efforts to remain interconnected with the above points of interconnection with the respective utilities or their successors in interest for the term of this Agreement.

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Section 5: Operation and Maintenance of the Transmission System

5.1 Installation, Operation and Maintenance of Unit Step-Up Transformers and Other Equipment. The Transmission Customer shall furnish, install and replace as necessary or cause to be furnished, installed and replaced, as necessary, all of the facilities required for the delivery of power to the Transmission System that are between the Generating Plants and the Generating Plant disconnect switches on the high voltage side of the unit step-up transformers for all of the Generating Plants, including but not limited to the unit step-up transformers (hereinafter "Step-Up Facilities"), provided that where such Step-Up Facilities have been installed as of the Effective Date, the Transmission Customer's obligation is limited to replacing such Step-Up Facilities, as required, consistent with Prudent Utility Practice. Ownership of such Step-Up Facilities will be vested in Big Rivers. The Transmission Customer shall cause to be operated and maintained, in a manner consistent with Prudent Utility Practice, the

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Step-Up Facilities during the term of this Agreement; provided that the Transmission Customer will compensate Big Rivers for such operation and maintenance services as set forth in a Transformer Operation and Maintenance Agreement between the Parties dated as of the date hereof, as such agreement is amended from time-to-time, during anytime in which Big Rivers performs these services for the Transmission Customer.

5.2 Ownership and Maintenance of Transmission System. Big Rivers has completed construction of all of the transmission facilities identified at Exhibit 3 to this Agreement, which are necessary to transmit power from the Generating Plants to the points of interconnection with other utilities identified at Subsection 4.2 above. Big Rivers shall operate and maintain, or cause to be operated and maintained, in a manner consistent with Prudent Utility Practice, all of the facilities described in Exhibit 3, as well as any facilities constructed pursuant to an executed Service Agreement with the Transmission Customer or otherwise needed to provide Firm Point-to-Point Transmission Service under such agreement, during the term of this Agreement.

5.3 Coordination of Transmission System Maintenance Schedules. Big Rivers shall submit to the Transmission Customer for its review

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and recommendations the proposed maintenance schedules for the Transmission System. The recommendations of the Transmission Customer shall not be binding upon Big Rivers; provided that Big Rivers shall use its reasonable best efforts, taking into account all uses and requirements of the Transmission System, as well as Prudent Utility Practice, to schedule planned transmission maintenance outages so as to accommodate the Transmission Customer's projected use of the Generating Plants and the Transmission System.

Section 6: Transmission of Electric Power and Energy

6.1 Point-to-Point Transmission Service. During each hour of the term of this Agreement, Big Rivers shall make available to the Transmission Customer Point-to-Point Transmission Service on the Transmission System, as requested by the Transmission Customer, on the terms set forth in this Agreement, subject to the availability of the Transmission Service requested as determined by the terms of the Tariff.

6.2 Agreement for Short-Term Firm Point-to-Point Transmission Service and Non-Firm Point-to-Point Transmission Service. This Agreement shall constitute the full Service Agreement required by the Tariff for any Short-Term Firm Point-to-Point Transmission Service and

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Non-Firm Point-to-Point Transmission Service requested by the Transmission Customer. When seeking to obtain Short-Term Firm Point-to-Point Transmission Service and Non-Firm Point-to-Point Transmission Service, the Transmission Customer shall be obligated to specify the type of service requested and will be provided with the requested service if the service requested is available pursuant to the Tariff. Short-Term Firm Point-to-Point Transmission Service and Non-Firm Point-to-Point Transmission Service shall be scheduled according to Sections 13.8 and 14.6 of the Tariff and shall be paid for according to Rate Schedules FTS, HNF and STNF of the Tariff.

6.3 Service Agreements for Firm Point-to-Point Transmission Service. Long-Term Firm Point-to-Point Transmission Service shall be provided by Big Rivers based on a completed Service Agreement in the form identified at Attachment A to the Tariff. These agreements will specify the Point(s) of Receipt, Point(s) of Delivery, maximum capacity reservations at each and the term over which the Transmission Customer seeks to reserve such Long-Term Firm Point-to-Point Transmission Service. Any system impact charges, facilities study charges and direct assignment facilities charges will be specified therein according to the terms of the Tariff.

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6.4 Provision of Transmission-Based Ancillary Services by Big Rivers to the Transmission Customer. Big Rivers shall be required to provide the following transmission-based Ancillary Services to the Transmission Customer: transmission scheduling, system control, and reactive supply and voltage control as available from the Transmission System within the capability of the system at the time service is provided (provided that Big Rivers has no responsibility to install additional capability). The costs of these transmission-based Ancillary Services provided by Big Rivers to the Transmission Customer are included in the cost of transmission services embodied in the Tariff rate schedules.

6.5 Member Transmission.

6.5.1. Big Rivers acknowledges and agrees as follows: In order to aid Big Rivers in obtaining certain approvals of the Kentucky Public Service Commission ("KPSC") as required for Big Rivers to pursue a plan of reorganization that will allow it to emerge from bankruptcy, LEM has undertaken the obligation to provide to Henderson Union Electric Cooperative Corp. ("Henderson Union") and Green River Electric Corporation ("Green River Electric," together with Henderson Union, the "Cooperatives") electric energy in certain specified quantities for resale to certain customers of said Cooperative ("the



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Smelters") to be delivered to specified points of interconnection between such Cooperative and Big Rivers at fixed prices. Those obligations are set forth in agreements hereinafter referred to as the LEM/Henderson Union Agreement and the LEM/Green River Electric Agreement. In conjunction with LEM's obligation to provide such electric energy to the Cooperatives, LEM may contract with Big Rivers for transmission service, either point-to-point service or network service, under Big Rivers' Tariff as reasonably necessary to meet its obligations to deliver energy pursuant to the LEM/Green River Electric Agreement or the LEM/Henderson Union Agreement. The obligation to sell to the Cooperatives electric energy delivered to specified points of interconnection between such Cooperative and Big Rivers, including the fixed price commitment, was previously the obligation of Big Rivers, and Big Rivers expected to purchase power from LEM to meet such commitment. In conjunction with Big Rivers' restructuring under the jurisdiction of the U.S. Bankruptcy Court for the Western District of Kentucky, and LEM's undertaking of the obligation to sell energy directly to the Cooperatives, LEM and Big Rivers agreed pursuant to the Lease and Operating Agreement and the Power Purchase Agreement, that WKEC and LEM, respectively, will pay to the Administrator of the Rural Utilities Service, U.S. Department of Agriculture or any

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successor agency or administration (on behalf of Big Rivers) or to Big Rivers certain "Monthly Margin Payments" which in the aggregate are roughly equivalent to the amount of revenue Big Rivers expected to receive from sales to the Cooperatives pursuant to the fixed price commitment less the price at which Big Rivers would have purchased power from LEM for such purpose. In consideration for the Monthly Margin Payments and LEM's assistance in attempting to secure the approval of the KPSC for Big Rivers' reorganization, Big Rivers agrees to the provisions of this Section 6.5.

6.5.2. The Parties agree that LEM will be entitled to reserve network transmission service on Big Rivers' Transmission System for 572 MW of Tier 1 Energy and Tier 2 Energy to be sold to the Cooperatives pursuant to the LEM/Green River Electric Agreement and the LEM/Henderson Union Agreement (where Tier 1 Energy and Tier 2 Energy have the meanings set forth in the LEM/Green River Electric Agreement and the LEM/Henderson Union Agreement) and 300 MW of non-firm point-to-point transmission service (with receipt and delivery points to be specified upon the Effective Date of the Tariff and annually thereafter subject to their availability in Big Rivers' Open Access Same-Time Information System ("OASIS") at each such time); provided however that (i) at any point in time, LEM will not use the

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572 MW of network service and the 300 MW non-firm point-to-point service to transmit more than a total of approximately 572 MW of energy simultaneously; (ii) that LEM shall have scheduled the use of such point-to-point transmission capacity to which it is entitled in (i) above at least one day in advance, consistent with the Tariff, and (iii) that Big Rivers shall have the full use of such non-firm point-to-point transmission reservation at any time, and to the extent to which, LEM is not entitled to the use of such transmission capacity pursuant to (i) above or has not scheduled such transmission pursuant to (ii) above. Collectively, the 572 MW of network transmission and the 300 MW of non-firm point-to-point transmission shall be referred to hereafter as "Member Transmission." Notwithstanding anything set forth in the Tariff or in any subsequent Service Agreement (such as in the form set forth in Attachment A to the Tariff), Big Rivers agrees that (x) so long as the full Monthly Margin Payments are made pursuant to the Lease and Operating Agreement (in Phase II) or the Power Purchase Agreement (in Phase I), or the Station Two Agreement, Big Rivers will deem the full cost of the Member Transmission to have been paid at the then-applicable Tariff rate as part of the Monthly Margin Payments, and (y) at any time that the Monthly Margin Payments are reduced pursuant to the provisions of Section 3.3(a)(iv) of the Power

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Purchase Agreement (during Phase I) and Section 2.3.2(c) of the Lease and Operating Agreement (during Phase II), then Big Rivers will deem the full cost of the proportionate amount of the Member Transmission equal to the ratio that the reduced Monthly Margin Payments bear to the full Monthly Margin Payments (the "Covered Member Transmission") plus the difference between the applicable Tariff rates for the remaining portion of the Member Transmission (the "Non-Covered Member Transmission") and the rate of \$0.98 per KW/mo. through December 31, 2006 and \$1.02 per KW/mo. thereafter, as having been paid at the full Tariff rates, provided that LEM pays Big Rivers an additional \$0.98 per KW/mo. or \$1.02 per KW/mo., as applicable, for each KW of Non-Covered Member Transmission. To the extent that in any month the Monthly Margin Payment is less than the payment then due at the then-applicable Tariff rate to Big Rivers from LEM for Member Transmission, Big Rivers will allocate money or credit received as a result of prior or future Monthly Margin Payments to the payment of LEM's obligation for Member Transmission. As such, between the Effective Date and December 31, 2011, LEM's cumulative cost for Member Transmission charged by Big Rivers ("Cumulative Rate") will never exceed the cumulative amount of Monthly Margin Payments for the same period. In the event that LEM's obligation to Green River Electric or Henderson

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Union declines by more than 300 MW, and Monthly Margin Payments are still being made to Big Rivers pursuant to the Lease and Operating Agreement (Phase I), the Power Purchase Agreement (Phase II) or the Station Two Agreement, Big Rivers agrees that LEM may elect to reduce its reservation of network service in a manner consistent with the Tariff or convert all or any portion of its firm network service to non-firm point-to-point service or such other service as then available, commencing on the first day of the succeeding billing month, provided that LEM gives Big Rivers notice of its intent to make such conversion at least two weeks prior to the first day of such month, provided further that Big Rivers agrees to make such conversion upon later notice if practicable, with receipt and delivery points for the converted point-to-point non-firm transmission service to be specified, subject to their availability at that time on Big Rivers' OASIS. From the time such election in the preceding sentence is made, such service will thereafter be deemed "Member Transmission" and all rights and limitations associated with Member Transmission as specified in this Section will attach thereto (including, without limitation, the commitment not to utilize more than approximately 572 MW for Member Transmission simultaneously). The Parties agree that the Member Transmission service is provided for the benefit of the

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Members who are presently served with firm service by Big Rivers.

Thus, Big Rivers acknowledges that the 572 MW of network service included in Member Transmission has a priority equal to that of Big Rivers' other existing firm service customers and is a beneficiary of Section 2 of Big Rivers' Tariff. Except as disclosed in Schedule 6.5 hereto, Big Rivers represents and warrants that as of the Effective Date it is not aware of any pending application for transmission service that would limit Big Rivers' ability to provide the 572 MW of network service included in Member Transmission or make it impossible to provide such service. Big Rivers further acknowledges that it is capable of providing the 572 MW of network service without need for a System Impact Study or Facilities Study, and no charges will be assessed on LEM for any studies required to provide Member Transmission. Big Rivers hereby waives its right pursuant to Section 26 of its Tariff to seek stranded costs with respect to Member Transmission.

6.5.3 Big Rivers further agrees that all of its commitments to LEM set forth in Section 6.5.2 shall remain in effect for the term of this Agreement, and shall not be subject to change through application to the FERC pursuant to the provisions of Section 205 of the Federal Power Act or any other governmental agency absent

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the agreement of each of the Parties to this Agreement. Accordingly, no Party to this Agreement shall petition FERC, any successor agency or any other governmental agency pursuant to the provisions of Section 205 or 206 of the Federal Power Act or any other provision of law that would require Big Rivers to amend the Cumulative Rate, Member Transmission priority, payment methodology or any other methodology or formula or any other commitment discussed in this Section 6.5 absent the agreement in writing of the other Party(s), nor shall any Party cooperate with any other person(s), or request or encourage any other person(s) to make such petition; and each Party further agrees to oppose any action to change such Cumulative Rate, payment methodology or other methodology or formula, or other commitment, including but not limited to pursuing appeals of any order or decision directing such change, and to bear all of its own costs of such opposition including attorney's fees.

6.5.4. If a change in any rate, methodology or formula set forth in this Section 6.5 is effected, then the Parties agree that they will promptly meet and use their good faith best efforts to enter into an agreement that will restore the relative rights and benefits, including economic benefits, of LEM.

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Section 7: Generation-Based Ancillary Services and Generation  
Redispatch

7.1 Obligations of the Transmission Customer. LEM will provide to Big Rivers, from its entitlement to Power generated by the Generating Plants, reactive power and any generation-based Ancillary Services that the FERC requires from time to time to be provided by a Transmission Provider (as defined in FERC's Order No. 883) similarly situated to Big Rivers and owning and operating the Generating Plants. Such reactive power and generation-based Ancillary Services will be provided by LEM in accordance with the terms and conditions set forth in the Power Purchase Agreement. Big Rivers may also purchase generation-based Ancillary Services from LEM in accordance with such entity's applicable tariff for the requested service(s).

7.2 Phase I: Delegation of Duties. During Phase I, to the extent that Big Rivers' obligations under this Agreement involve operation of the Generating Plants, Big Rivers will take such measures as are necessary to assure that the operator of its Generating Plants fulfills such obligations. The Transmission Customer acknowledges and agrees that Big Rivers may cause its operator to undertake such of its obligations hereunder with respect to day-to-day operation of the Generating Plants as Big Rivers and its operator may agree.



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Section 8: System Operations

8.1 Control Responsibilities. The Parties agree that primary responsibility for actions related to system operations shall be allocated as follows:

8.1.1 Primary Responsibilities of Big Rivers as Operator of the Control Area. Big Rivers, as operator of the Control Area, shall maintain primary responsibility for the following Control Area functions. If Big Rivers assigns its responsibilities as operator of the Control Area, the duties identified below shall also be assigned.

- 8.1.1.1 Transmission System scheduling.
- 8.1.1.2 Operation of the Control Area in accordance with NERC and ECAR criteria.
- 8.1.1.3 Operation of the Control Area OASIS or successor system.
- 8.1.1.4 Real-time monitoring of Transmission System contingencies.
- 8.1.1.5 Static positioning of Transmission System switching.
- 8.1.1.6 Determination of Transmission System constraints.
- 8.1.1.7 Determination of Transmission System path ratings.

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- 8.1.1.8 Contracting to provide Transmission Services (other than generation-based Ancillary Services) to Third Parties.
- 8.1.1.9 Planning, construction, operation and maintenance of needed transmission facilities.
- 8.1.1.10 Inadvertent interchange accounting.
- 8.1.1.11 Scheduling of transmission maintenance (subject to the provisions of Section 5.3 of this Agreement).
- 8.1.1.12 Monitoring the adequacy of spinning and supplemental operating reserves consistent with reliability guides, principles, and responsibilities set forth in ECAR documents and guides and NERC criteria.
- 8.1.1.13 Responding to ECAR automatic reserve sharing requests by entering appropriate schedules and notifying the operator of the Generating Plants.
- 8.1.1.14 Entering ECAR automatic reserve sharing requests upon being notified by a generator operator of a loss of a generating unit and entering the

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appropriate schedules as the supporting control areas respond to the request.

8.1.1.15 Monitoring Control Area performance.

8.1.2 Primary Responsibilities With Respect To The Generating Plants. As owner of the Generating Plants, Big Rivers shall maintain primary responsibility for the following functions during Phase I, and WKEC as lessee of the Generating Plants other than Station Two and Station Two Subsidiary as operator of Station Two shall maintain primary responsibility for the following functions during Phase II. Any Party may, however, assign its obligations under this Section 8.1.2, including day-to-day operation of the Generating Plants, to a person or organization capable of executing such obligations, provided the other Party so consents, such consent not to be unreasonably withheld.

8.1.2.1 Generation unit commitment.

8.1.2.2 Generation dispatch (subject to redispatch obligations identified at Section 5.4 of the Power Purchase Agreement).

8.1.2.3 Generation maintenance scheduling (subject to the provisions of Section 8.4 of this Agreement).

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- 8.1.2.4 Providing generation-based Ancillary Services (subject to the provisions of Sections 7.1 and 7.2 of this Agreement and Sections 5.5 through 5.8 of the Power Purchase Agreement).
- 8.1.2.5 Emergency generation curtailment.
- 8.1.2.6 Allocation of spinning and operating reserves among generation units in response to Control Area operator direction consistent with reliability guides, principles, and responsibilities set forth in ECAR documents and guides and NERC criteria.
- 8.1.2.7 Balance area control inadvertence account.
- 8.1.2.8 Providing to the Control Area operator generator loading information and information regarding loss of generating units and plans for recovery, including that required to be provided to ECAR for the automatic reserve sharing system and direction regarding the need, if any, for automatic reserve sharing.

8.2 Operational Procedures and Protocols; Cooperation. The Parties shall cooperate in performing the functions set out in Section

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8.1 of this Agreement and in allocating any responsibilities not identified in this Section 8 to ensure operation of the Control Area and Transmission System in a manner consistent with Prudent Utility Practice. Such cooperation shall include, but shall not be limited to, the joint formulation by the Parties, as applicable, in a timely manner, of more detailed procedures and protocols as needed for the coordinated operations referenced in this Section 8. The Transmission Customer acknowledges and agrees that Big Rivers may cause the operator of its Generating Plants to fulfill its day-to-day duties under this Section 8.2 with respect to operation of the Generating Plants.

8.3 Coordination of Generation Maintenance Schedules.

8.3.1 During Phase I, Big Rivers shall submit or cause the operator of its Generating Plants to submit to LEM for its review and recommendations the proposed maintenance schedules for the Generating Plants. LEM's recommendations to Big Rivers shall not be binding; provided that Big Rivers, through its operator, shall use all reasonable best efforts, taking into account all uses and requirements of the Generating Plants, as well as Prudent Utility Practice, to schedule the planned maintenance of the Generating Plants in a manner

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consistent with accommodating the uses of the Transmission System projected by LEM.

8.3.2 During Phase II, WKEC and Station Two Subsidiary shall submit to Big Rivers for its review and recommendations the proposed maintenance schedules for the Generating Plants. Big Rivers' recommendations to WKEC and Station Two Subsidiary shall not be binding; provided that WKEC and Station Two Subsidiary shall use all reasonable best efforts, taking into account all uses and requirements of the Generating Plants, as well as Prudent Utility Practice, to schedule the planned maintenance of the Generating Plants in a manner consistent with accommodating the uses of the Transmission System projected by Big Rivers.

8.4 Generation Scheduling and Unit Commitment. During the Term of this Agreement, information concerning generation schedule and unit commitment will be freely shared among the parties as necessary to effect the transactions contemplated in this Agreement.

Section 9: Rates and Charges for Transmission Services

9.1 Initial Rates. The initial rates for Transmission Services shall be as set forth in the rate schedules in the Tariff, which are expressly incorporated as a part of this Agreement (Rate Schedules

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FTS, STNF and HNF). Big Rivers represents that the initial rates for Firm Point-to-Point Transmission Service hereunder (Rate Schedule FTS) were calculated in a manner consistent with methods approved by FERC and are applicable to all Available Transmission Capability. Big Rivers further represents that the initial rates for Non-Firm Transmission Service hereunder (Rate Schedules STNF and HNF) were established using a ceiling of the Tariff rates for Firm Point-to-Point Transmission Service.

9.2 Rate Revisions. The rates identified in the Tariff rate schedules attached will be recalculated and the applicable Tariff rate schedules prospectively revised from time to time either upon the initiative of Big Rivers or within six (6) months of request by the Transmission Customer; provided, that such rates shall be revised not more than once in any consecutive 36-month period at the initiative of the same Party unless the transmission revenue requirements since the last rate calculation increase by more than \$1 million, in which case Big Rivers will be authorized to recalculate the rates. No revision in these rates may be made until at least 36 months after the Effective Date, except where the transmission revenue requirement increases after the Effective Date total more than \$1 million, in which case Big Rivers shall be authorized to recalculate the rates.

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Revised rates for Rate Schedule FTS shall be based on the cost of the Transmission System, with the assignment of facilities to the Transmission System and the determination of the cost thereof being consistent with principles applied to the determination of such transmission rates by the FERC. Revised rates for Rate Schedules HNF and STNF shall be established using the recalculated Schedule FTS rates as a ceiling.

9.3 Stranded Costs. Big Rivers acknowledges that the Transmission Services provided hereunder will not result in any stranded costs to Big Rivers and that stranded costs thus will not be a cost item allocable to the Transmission Customer for any Transmission Services provided hereunder; provided that LEM and its Affiliates comply with the exclusivity requirements of Section 4.4 of the Power Purchase Agreement. In addition to any other remedies available to Big Rivers under the Power Purchase Agreement, if LEM or its Affiliates violate the exclusivity provision by providing power to a customer covered therein, LEM or such Affiliate shall be liable for any otherwise unrecovered stranded costs in the amounts that Big Rivers reasonably expected to obtain from continuing to serve the customer(s) subject to the exclusivity requirements that became a customer(s) of LEM or its Affiliate. Such reasonably expected



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stranded costs shall be recovered as a surcharge to rates for transmission of the Transmission Customer's power to that customer and shall not be included as a part of the minimum annual transmission payment in the Lease and Operating Agreement. These stranded costs shall be calculated in accordance with applicable FERC precedent. The Parties acknowledge and agree that LEM will have no liability for exit fees, stranded costs or other similar costs, expenses or charges under this provision or otherwise with respect to LEM's provision of electric power to Green River Electric or Henderson Union for resale to Alcan Aluminum Corp. or its successor or assigns with respect to the Sebree Smelter and related operations or to Southwire Company or NSA, Inc. or their successors or assigns with respect to the smelter, rod and cable mill and related operations in Hancock County, Kentucky. Nothing herein affects the LG&E Parties' obligation to pay Monthly Margin Payments as set forth in the Power Purchase Agreement and the Lease and Operating Agreement.

9.4 Incremental Facilities. The Wilson-Green River tie with Kentucky Utilities Company shall not be classified as an incremental facility for pricing of Transmission Services to the Transmission Customer, but shall be included in embedded Tariff rates.

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9.5 Transmission Loss Compensation. All Reserved Capacity amounts under this Agreement will be for the amounts of capacity and energy that the Transmission Customer will be permitted to deliver to the requested Point(s) of Delivery, after makeup of real power losses. The Transmission Customer will arrange for delivery at the Point(s) of Delivery, all amounts of power and energy as scheduled plus sufficient additional power and energy to account for transmission system average real power losses. The effective annual loss rate during each applicable period shall be computed as identified at Exhibit 4.

9.6 Rates, Terms and Conditions Not Unfavorable. The Transmission Customer shall not be charged more than the lesser of (i) the amount that Big Rivers imputes to itself for its own off-system transactions or (ii) the amount Big Rivers charges to any Third Party taking service after the Effective Date of this Agreement for comparable Point-to-Point Transmission Service and Ancillary Services. The terms and conditions of Transmission Service and Ancillary Services provided to the Transmission Customer shall not be (i) less favorable than those applied by Big Rivers to itself for its own off-system transaction under the Tariff or (ii) less favorable than those applied by Big Rivers to any Third Party taking service after the Effective Date of this Agreement. Big Rivers may upon its own

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initiative, or shall at the request of the Transmission Customer, within six (6) months of the request, modify the Tariff to incorporate changes in transmission terms and conditions mandated by FERC for implementation by Transmission Providers (as defined in FERC's Order No. 888) that are public utilities under the Federal Power Act or succeeding statutes, as FERC modifies such transmission terms and conditions from time to time and shall amend the Tariff and the Agreement to conform unless such changes are not appropriate for a cooperative corporation such as Big Rivers.

Section 10: Billing and Payment

A Party supplying services to the other Party for which compensation under the terms of this Agreement is required shall bill the other Party each month by facsimile (with the original of such bill transmitted to that Party by certified mail) for amounts owed, calculated pursuant to the methodology specified for each appropriate service under this Agreement. With respect to any year for which Big Rivers owes to LEM pursuant to Section 9.6 of the Participation Agreement a Non-Firm Transmission Use Credit, Big Rivers shall, on February 1 of the following year, credit to the Transmission Customer's account the full amount of such Non-Firm Transmission Use

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Credit, which credit will satisfy Big Rivers' obligations under Section 9.6 of the Participation Agreement for that year. All amounts of such bills (after adjustment for such credit), including any disputed amounts, shall be paid by the other Party by electronic wire transfer by the later of (i) within 15 days of facsimile receipt of such bill or (ii) the last Business Day of the month. Electronic wire transfers made to Big Rivers shall be sent to Farmers Bank of Henderson, Kentucky, ABA No. 083900538 for the credit of Big Rivers General Fund, Account No. 10585559, or such other financial institution or account number as Big Rivers may specify from time to time in writing. Electronic wire transfers made to LEM shall be sent to PNC Bank, Kentucky, ABA No. 083000108 for the credit of LG&E Energy Marketing Inc., Account No. 3100532665, or such other financial institution or account number as LEM may specify from time to time in writing. Electronic wire transfers made to Station Two Subsidiary shall be sent to PNC Bank, Kentucky, ABA No. 083000108 for the credit of WKE Station Two Inc., Account No. 3004361413, or such other financial institution or account number as Station Two Subsidiary may specify from time to time in writing. Electronic wire transfers made to WKEC shall be sent to PNC Bank, Kentucky, ABA No. 083000108 for the credit of Western Kentucky Energy Corp., Account No. 3004361317, or

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such other financial institution or account number as WKEC may specify from time to time in writing. Interest for each calendar month or partial calendar month during the period of delinquency, if any, shall accrue on any unpaid amounts at a rate equal to the Default Rate.

Section 11: Metering

11.1 Metering and Communications Equipment at Points of Receipt.

Where Big Rivers has not already installed metering and communications equipment at the location or locations, as necessary, identified in Exhibit 2 as "Plants" as needed to account accurately for the Unit Output being transmitted from the Generating Plants, under this Agreement and the Power Purchase Agreement, and to communicate the information to the Control Area operator, the Transmission Customer shall be responsible for installing such necessary meters and communications equipment and for the cost of doing so. The Parties acknowledge and agree that the Transmission Customer may elect to install loss compensators in combination with existing equipment on the low side of the transformers, so long as the newly installed loss compensators and the existing metering equipment to be utilized both are metering grade accuracy. Where existing equipment is not of metering grade accuracy, LEM will install new metering equipment

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(including where applicable loss compensators) on the low side of the transformers sufficient to provide such accuracy. Big Rivers shall maintain and operate all such equipment during the Term of this Agreement, both that which exists as of the Effective Date and that installed by the Transmission Customer, and make the information gathered from such meters and with such equipment available for use by the Transmission Customer throughout the Term of the Agreement the Tariff and any application laws and regulations. Ownership of such meters and equipment will be vested in Big Rivers. Equipment installed by the Transmission Customer shall meet all applicable requirements of this Agreement, the Tariff and any applicable laws and regulations. If any of the metering or equipment at the points identified in Exhibit 2 as "Plants" is found to be inaccurate or defective during the Term of this Agreement, Big Rivers shall adjust or repair or replace it at the Transmission Customers' expense in order to provide more accurate metering. The Transmission Customer will pay Big Rivers on the first day of each month for the Term of this Agreement, an amount equal to Big Rivers' cost of performing such operation, maintenance, adjustment, repair or replacement of the meters which cost the Parties agree will be determined pursuant to the Meter and Telemetry Equipment Operation and Maintenance Agreement.

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11.2 Other Metering and Communications Equipment. Big Rivers shall operate and maintain all metering and communications equipment at all interconnections of the Transmission System with other transmission systems and as needed to measure deliveries of power and energy to the Members, including all points identified in Exhibit 2 as "Big Rivers' Interconnection with Other Utilities" and Exhibit 5. Big Rivers' metering used to measure deliveries of power and energy to Members shall be located at the points and at such voltages as described in Exhibit 5. If any of the metering or communications equipment at the Points of Delivery at the interconnections of the Transmission System with other transmission systems or as needed to measure deliveries of power and energy to the Members is found to be inaccurate or defective during the Term of this Agreement, Big Rivers shall adjust or repair or replace it at Big Rivers' expense in order to provide more accurate metering.

11.3 Access to Metering Data. Each Party, upon request, shall have access to all metering data which reasonably may be required to facilitate computation of average transmission losses on the Transmission System and for other measurements and billings under this Agreement, and the Power Purchase Agreement.

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11.4 Meter Testing and Correction. . Big Rivers will inspect and test, or arrange for inspection and testing, of all meters reasonably needed to measure receipt and delivery of capacity, energy (real and reactive, where necessary) and of transmission losses hereunder and under the Power Purchase Agreement, in accordance with prevailing regulations. Big Rivers shall test or have tested any meter controlled by it upon the request of the Transmission Customer; provided that if such test reveals the tested meter to be inaccurate by not more than 1 percent, the Transmission Customer shall pay all costs of such test. Big Rivers shall provide the Transmission Customer with reasonable notice when any such inspection or test shall take place, and the Transmission Customer shall be entitled to have a representative present at such test or inspection. If any meter is found to be inaccurate by not more than 1 percent, then any previous recordings of such meter shall be deemed accurate, but the meter shall be immediately adjusted, repaired or replaced as provided above to record more accurately. If any meter is found to be in error by more than 1 percent, or otherwise is known to have failed to record during any period, then the Parties shall use their reasonable best efforts, by the best available means, to determine or to estimate amounts delivered during the period affected by such error, service outage or



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failure to register properly. The appropriate Party shall then be paid by the other Party the full amount of any under or over payment attributable to the inaccurate metering.

Section 12: Records and Statements

The Parties hereto shall keep in duplicate such records as may be needed to afford a clear history of the various deliveries of electric energy made by one Party to the other in connection with services provided under this Agreement and of the clock-hour integrated demands in kilowatt-hours delivered by one Party to the other. Each Party shall keep for a three-year period the originals of records of all transactions to supply such services, unless such records are required to be kept longer by an applicable regulatory body, in which case the requirement shall take precedence for determining the period for retaining original records. Each month, the Party keeping the original records shall supply the other Party with duplicate copies of such records as were added or modified since the prior month except as the Parties may agree upon a different time interval for such supply.

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Section 13: Audit Rights

During the term of this Agreement, each Party (including for the purposes of this Section such Party's consultant or other agent) may review the accounting records and supporting documents of the other Party relevant to the determination of any rate charged or of average loss rates applied hereunder during the prior 36 months; provided that each Party may conduct no more than one such audit during any consecutive six-month period. Any such audit shall be conducted at the offices of the Party to be audited during its normal business hours, and at the auditing Party's own expense. Each Party shall take all steps reasonably available to secure the confidentiality of the accounting records and of supporting documents of the other Party and shall use such accounting records and supporting documents only for the purpose of determining if such Party's rates and transmission real power losses are appropriate. Disclosure of accounting records and supporting documents to a Party is not intended to, and shall not be interpreted to, waive the other Party's right to maintain that such records and supporting documents are privileged, confidential, proprietary, or otherwise protected from disclosure to the public. In the event such information is required in a legal or regulatory proceeding, the requesting Party shall advise

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the Party to which the request has been made of the requirement to disclose such information prior to their disclosing it and at that Party's request shall ask for confidentiality of any such information.

Section 14: Notices

All notices, billings and other communications to either Party under this Agreement, unless specified otherwise elsewhere in this Agreement, must be in writing and shall be addressed respectively as follows:

Big Rivers Electric Corporation  
201 Third Street  
Post Office Box 24  
Henderson, Kentucky 42419  
Phone No. (502) 827-2561  
Telecopy No. (502) 827-2558  
Attn: Michael Core and David Spainhoward

With a copy to:

James M. Miller, Esq.  
Sullivan Mountjoy, Stainback & Miller, P.S.C.  
100 St. Ann Building  
Post Office Box 727  
Owensboro, Kentucky 42303-0727  
Phone No. (502) 926-4000  
Telecopy No. (502) 683-6694

And addressed to (as applicable):

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President  
LG&E Energy Marketing Inc.  
220 W. Main Street  
P.O. Box 32030  
Louisville, Kentucky 40232  
Phone No. (502) 627-2108  
Telecopy No. (502) 627-2585

President  
Western Kentucky Energy Corp.  
220 W. Main Street  
P.O. Box 32030  
Louisville, Kentucky 40232  
Phone No. (502) 627-4891  
Telecopy No. (502) 627-2585

President  
WKE Station Two Inc.  
220 W. Main Street  
P.O. Box 32030  
Louisville, Kentucky 40232-2030  
Phone No. (502) 627-4891  
Telecopy No. (502) 627-2585

With a copy to:

General Counsel  
LG&E Energy Corp.  
220 W. Main Street  
P.O. Box 32030  
Louisville, Kentucky 40232-2030  
Phone No. (502) 627-3665  
Telecopy No. (502) 627-2585

All notices shall be given (1) by personal delivery to the Party (including by overnight delivery if receipt by such Party is confirmed), (2) certified or registered mail, return receipt requested, or (3) by confirmed electronic communication if followed on the same date by registered or certified mail return receipt requested. All notices shall be effective and shall be deemed delivered (a) if by personal delivery, on the date of delivery, (b) if

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by certified or registered mail, on the date delivered by the United States Postal Service as shown on the receipt, and (c) if by electronic communication, on the date the confirmation is delivered to the United States Postal Services as shown on the actual receipt. A Party may change its address from time to time by notice to the other Party.

Section 15: Additional Representations, Warranties and Covenants of Big Rivers

In addition to such representations, warranties and covenants attested to by Big Rivers in the Participation Agreement, Big Rivers further represents, warrants and covenants as follows:

15.1 Ownership. Big Rivers is the owner of the existing Transmission System, which includes the Wilson-Green River tie facilities, all as described in Exhibit 3. Other than as set forth in Schedule 15.1 to this Agreement, no other lien or other encumbrance in, or rights to use, the Transmission System is held by any other party as of the date of this Agreement.

15.2 Transfer of the Transmission System. Big Rivers will not remove, abandon, sell, assign, transfer or relinquish control of any facilities that would prevent it from fulfilling, in any respect, its

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obligations hereunder, other than as security for debt incurred in the ordinary course of business, or to an entity into which Big Rivers is merged or consolidated or to which Big Rivers transfers substantially all of its assets, unless it has received the written consent of the Transmission Customer, which consent the Transmission Customer agrees not to unreasonably deny.

15.3 Operation and Maintenance of Transmission System. Big Rivers will operate and maintain the Transmission System in a manner consistent with Prudent Utility Practice.

Section 16: Uncontrollable Forces

16.1 Neither Party to this Agreement shall be considered to be in default in performance of any obligation hereunder if failure of performance shall be due to an Uncontrollable Force. The term "Uncontrollable Force" means any cause beyond the control of the Party affected, including, but not limited to, flood, earthquake, storm, fire, lightning, epidemic, war, riot, civil disturbance, labor disturbance, sabotage, and restraint by court order or public authority (other than any filing of a petition in bankruptcy or reorganization or arrangement under any bankruptcy or insolvency laws), which by exercise of due foresight such Party could not

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reasonably have been expected to avoid, and to the extent that by exercise of due diligence it shall be unable to overcome. A Party shall not, however, be relieved of liability for failure of performance of such failure is due to causes arising out of removable or remediable causes which it fails to remove or remedy with reasonable dispatch. Any Party rendered unable to fulfill any obligation by reason of an Uncontrollable Force shall exercise due diligence to remove such inability with all reasonable dispatch.

16.2 Notwithstanding anything contained elsewhere in this Agreement to the contrary and without extending any period otherwise specified in this Agreement for remedy, in the event an Uncontrollable Force causes Big Rivers to deliver on behalf of the Transmission Customer none of the energy and capacity produced by the Generating Plants (to either the Transmission Customer's designated Point(s) of Delivery or such secondary Point(s) of Delivery to which the Transmission Customer consents to receive its power) for a period of 30 consecutive days or more, then the Transmission Customer is fully excused from its payment obligations under this Agreement until such time as Transmission Service by Big Rivers for the Transmission Customer pursuant to this Agreement recommences. Further, for each month in which LEM is excused from its payment obligations under this

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Agreement pursuant to the preceding sentence, it is also entitled to a reduction in its annual obligation otherwise payable under Section 9.6 of the Participation Agreement which reduction shall equal each month the average monthly charges incurred by the Transmission Customer pursuant to this Agreement as determined over the shorter of (i) the 12 full months immediately preceding the commencement of such Uncontrollable Force or (ii) all of the months between the Effective Date and up to and including the last full month immediately preceding the commencement of such Uncontrollable Force.

16.3 Notwithstanding anything contained elsewhere in this Agreement to the contrary and without extending any period otherwise specified in this Agreement for remedy, in the event of (1) a failure of performance by Big Rivers under this Agreement caused by an Uncontrollable Force which is of such a nature that it cannot be remedied or cured by repair to or replacement of or construction of tangible assets or properties the use or enjoyment of which are required in order for the Transmission Customer to receive transmission for those amounts of Power and Ancillary Services to which it is entitled under this Agreement (other than an Uncontrollable Force associated with the Step-Up Facilities, for which the Transmission Customer is responsible), and (2) such failure of



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performance is of such a nature that the Transmission Customer is thereby rendered incapable of receiving transmission for those amounts of Power and Ancillary Services which such Transmission Customer is otherwise entitled to have transmitted in accordance with this Agreement, then such failure of performance must be remedied within 180 days after notice thereof is delivered by the Transmission Customer or LEM shall have the right to reduce its fixed payment obligations (but not the obligation to make Monthly Margin Payments) under Section 3.3 of the Power Purchase Agreement (during Phase I) and WKEC shall have the right to reduce its fixed payment obligations (but not the obligation to make Monthly Margin Payments) under Section 2.3 of the Lease and Operating Agreement (during Phase II) as follows. For each month following the 180th day after the commencement of such Uncontrollable Force and continuing until such time as the failure of performance is remedied (prorated for each partial month), the fixed payment obligation (but not the obligation to make Monthly Margin Payments) of LEM under Section 3.3 of the Power Purchase Agreement or WKEC under Section 2.3 of the Lease and Operating Agreement shall be equal to the amount otherwise due during such month multiplied by the ratio of (i) AE to (ii) UOP, (provided that if such ratio is equal to

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or greater than 1 it shall be deemed to equal 1), where, each of and UOP are measured in megawatt-hours and

- AE equals the amount of Energy (exclusive of the amount of Energy taken by the City of Henderson, Kentucky from Station Two) that (A) is produced by the Generating Plants during such month and which Big Rivers (i) purchases from LEM pursuant to the Power Purchase Agreement or (ii) transmits as scheduled (without regard to whether the purchaser of the Transmission Service is an LG&E Party); and (B) if otherwise included in (x) or (y) of UOP, below, that could have been generated by the Generating Plants and transmitted on Big Rivers' Transmission System, but was not generated for reasons other than due to the inability to transmit such Power; and
- UOP equals the greater of (x) the actual Unit Output during such month or (y) the average monthly Unit Output as determined over the shorter of (i) the 12 full months immediately preceding the commencement of such Uncontrollable Force or (ii) all of the months between the Effective Date and up to and including the last full month

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immediately preceding the commencement of such  
Uncontrollable Force.

16.4 Following the occurrence and remedy of a failure of performance of the type described in the first sentence of Section 16.3, any re-occurrence of the failure of performance that arises from a common cause or a continuation of the same event or legal proceeding as the first occurrence shall also be grounds for the same right of LEM or WKEC for a reduction in payment in the same manner as described in Section 16.3, but which right of reduction shall be effective thirty (30) Business Days after LEM delivers to Big Rivers a notice of failure of performance and only if such failure of performance is not cured within such 30 day period.

16.5 Nothing in this Section 16 relieves LEC of its obligations to indemnify Big Rivers pursuant to Section 9 of the Guaranty Agreement.

Section 17: Liability and Indemnity

17.1 Indemnification. Each Party shall indemnify and save the other Party and the directors, officers, and employees of such other Party harmless from liability, loss, damage, claim, costs, and expenses (including attorneys' fees) on account of injury to persons

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(including death) or damage or destruction of property occasioned by the negligence, whether active or passive, or the willful misconduct of such indemnifying Party and its officers, directors, employees, or contractors in the performance of this Agreement; provided, however, that:

(a) Each Party shall be solely responsible to its own employees for all claims or benefits due for injuries occurring in the course of their employment or arising out of any workers' compensation law. Neither Party shall seek reimbursement or subrogation from the other Party for any benefits paid to the employees of either Party pursuant to any workers' compensation law except as necessary to prevent double recovery by the employee.

(b) Neither Party and its directors, officers, and employees shall be liable for any loss of earnings, revenues, indirect or consequential damages, or injury which may occur to the other Party as a result of outages in delivery of services hereunder by reason of any cause whatsoever, including negligence.

17.2 Liability. Each Party shall indemnify and save the other Party, and its directors, officers and employees harmless for any liability, loss, claim or cost (including attorneys' fees) for any claims made by the indemnified Party's electric service customers as a

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result of any failure of the indemnifying Party to deliver or accept electric power or energy or Ancillary Services contemplated by this Agreement for any reason or any cause whatsoever, including the willful or negligent act of the indemnifying Party or its breach of this Agreement or any Agreement identified in the Recitals hereto, except to the extent that the indemnifying Party's failure to deliver or accept electric power or energy or Ancillary Services is excused pursuant to Section 16, or is the result of the negligent or willful actions or omissions of the indemnified Party or its agents or employees. Further, the indemnifying Party's obligations to the indemnified Party are limited to claims brought by the indemnified Party's electric service customers taking service under agreements or tariffs existing as of the Execution Date of the Participation Agreement, exclusive of amendments made after that date (other than amendments made to effectuate the transaction which is the subject of the Participation Agreement and the agreements referenced therein), unless the indemnifying Party has consented to undertake such obligation, in writing, which consent shall not be unreasonably withheld.

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Section 18: Other Provisions

18.1 Assignment. Assignability of this Agreement is governed by the applicable provisions of the Participation Agreement.

18.2 Governing Law. This Agreement shall be governed by and interpreted in accordance with the internal laws of the Commonwealth of Kentucky, exclusive of choice of law provisions.

18.3 Waiver. The failure of a Party to insist on the strict performance of any provision of this Agreement or to exercise any right, power or remedy upon a breach of any provision of this Agreement shall not constitute a waiver of any provision of this Agreement or limit the Party's right thereafter to enforce any provision or exercise any right.

18.4 Entire Agreement. This Agreement, the Tariff, any Services Agreements for Firm Point-to-Point Transmission Service entered by the Transmission Customer pursuant to this Agreement and the Tariff, the Participation Agreement, and the other agreements described in the Participation Agreement constitute the entire agreement of the Parties hereto with respect to the transaction addressed herein and supersede all prior agreements, whether oral or written. This Agreement may be amended only by a written document signed by both Parties hereto.

18.5 Effect of Section Headings. Section headings appearing in

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this Agreement are inserted for convenience of reference only and shall not be construed to be an interpretation of the text of this Agreement.

18.6 Survival of Terms and Conditions. The provisions of this Agreement shall terminate upon the termination of this Agreement, except that the obligation to pay amounts due hereunder shall survive until paid.

18.7 Dispute Resolution. Any dispute relating to Big Rivers' rates or terms and conditions to the Transmission Customer, or otherwise arising under this Agreement or the Tariff shall be subject to the process for dispute resolution and arbitration provided in the Participation Agreement and made applicable to this Agreement pursuant to the terms therein.

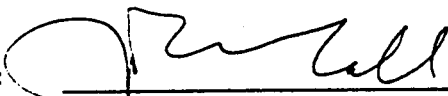
18.8 This Agreement Governs. In the event of a conflict between this Agreement and the Tariff, the provisions of this Agreement shall govern.

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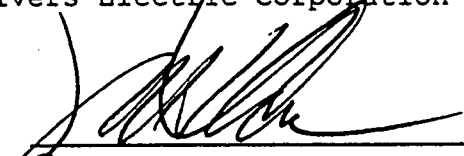
TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed as of the date of the first written above in their respective names by their respective officers thereunder duly authorized.

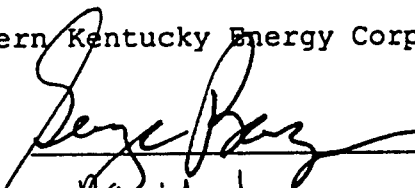
LG&E Energy Marketing Inc.

By:   
Title: Vice President & Secretary

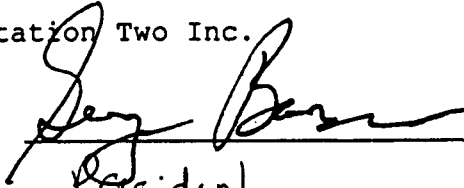
Big Rivers Electric Corporation

By:   
Title: President and CEO

Western Kentucky Energy Corp.

By:   
Title: President

WKE Station Two Inc.

By:   
Title: President



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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

**EXHIBIT 1**

**Big Rivers Electric Corporation  
Open Access Transmission Tariff**

BIG RIVERS ELECTRIC CORPORATION

OPEN ACCESS

TRANSMISSION TARIFF

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Big Rivers Electric Corporation

Open Access Transmission Tariff  
Original Sheet No. 2

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I. COMMON SERVICE PROVISIONS

1 Definitions

- 1.1 **Ancillary Services:** Those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable operation of Big Rivers' Transmission System in accordance with Good Utility Practice.
- 1.2 **Annual Transmission Costs:** The total annual cost of the Transmission System for purposes of Network Integration Transmission Service shall be the amount specified in Attachment H until amended by Big Rivers.
- 1.3 **Application:** A request by an Eligible Customer for transmission service pursuant to the provisions of the Tariff.
- 1.4 **Completed Application:** An Application that satisfies all of the information and other requirements of the Tariff, including any required deposit.
- 1.5 **Control Area:** An electric power system or combination of electric power systems to which a

common automatic generation control scheme is applied in order to:

- (1) match, at all times, the power output of the generators within the electric power system(s) and capacity and energy purchased from entities outside the electric power system(s), with the load within the electric power system(s);
- (2) maintain scheduled interchange with other Control Areas, within the limits of Good Utility Practice;
- (3) maintain the frequency of the electric power system(s) within reasonable limits in accordance with Good Utility Practice; and
- (4) provide sufficient generating capacity to maintain operating reserves in accordance with Good Utility Practice.

1.6 **Curtailment:** A reduction in firm or non-firm transmission service in response to a transmission capacity shortage as a result of system reliability conditions.

- 1.7 **Delivering Party:** The entity supplying capacity and energy to be transmitted at Point(s) of Receipt.
- 1.8 **Designated Agent:** Any entity that performs actions or functions on behalf of Big Rivers, an Eligible Customer, or the Transmission Customer that are required under the Tariff.
- 1.9 **Direct Assignment Facilities:** Facilities or portions of facilities that are constructed by Big Rivers for the sole use/benefit of a particular Transmission Customer requesting service under the Tariff. Direct Assignment Facilities shall be specified in the Service Agreement that governs service to the Transmission Customer and shall be subject to regulatory approval where applicable.
- 1.10 **Eligible Customer:** (i) Any electric utility (including Big Rivers and any power marketer), Federal power marketing agency, or any person generating electric energy for sale for resale is an Eligible Customer under the Tariff. Electric energy sold or produced by such entity may be electric energy produced in the

United States, Canada or Mexico. However, with respect to transmission service that the Commission is prohibited from ordering by Section 212(h) of the Federal Power Act, such entity is eligible only if the service is provided pursuant to a state requirement that Big Rivers offer the unbundled transmission service, or pursuant to a voluntary offer of such service by Big Rivers. (ii) Any retail customer taking unbundled Transmission Service pursuant to a state requirement that Big Rivers offer the transmission service, or pursuant to a voluntary offer of such service by Big Rivers, is an Eligible Customer under the Tariff.

**1.11 Facilities Study:** An engineering study conducted by Big Rivers to determine the required modifications to Big Rivers' Transmission System, including the cost and scheduled completion date for such modifications, that will be required to provide the requested transmission service.

1.12 FERC: The Federal Energy Regulatory Commission, or its successor agency.

1.13 Firm Point-To-Point Transmission Service: Transmission Service under this Tariff that is reserved and/or scheduled between specified Points of Receipt and Delivery pursuant to Part II of this Tariff.

1.14 Good Utility Practice: Any of the practices, methods and acts engaged in or approved by a significant portion of the electric utility industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.



**1.15 Hourly Non-Firm Transmission Service: Non-Firm**

Transmission Service under Rate Schedule HNF that is scheduled and paid for on an as-available basis and is subject to interruption.

**1.16 Interruption:** A reduction in non-firm transmission service due to economic reasons pursuant to Section 12.7.

**1.17 LEM:** LG&E Energy Marketing Inc., the purchaser of all of Big Rivers' generating unit output, directly or indirectly during the term of Big Rivers' twenty-five year transaction with LEM, LG&E Energy Corp., and other affiliates of LG&E Energy Corp.

**1.18 Load Ratio Share:** Ratio of a Transmission Customer's Network Load to Big Rivers' total load computed in accordance with Sections 34.2 and 34.3 of the Network Integration Transmission Service under Part III the Tariff and calculated on a rolling twelve month basis.

**1.19 Load Shedding:** The systematic reduction of system demand by temporarily decreasing load in response to transmission system or area capacity shortages, system

instability, or voltage control considerations under Part III of the Tariff.

**1.20 Long-Term Firm Point-To-Point Transmission Service:**

Firm Point-To-Point Transmission Service under Part II of the Tariff with a term of one year or more.

**1.21 Native Load Customers:** The wholesale power customers

of Big Rivers, on whose behalf Big Rivers, by contract, has undertaken an obligation to construct and operate its system to meet the reliable electric needs of such customers. Big Rivers' native load customers specifically include its four member distribution cooperatives and their successors: Green River Electric Corporation; Henderson-Union Electric Cooperative; Jackson Purchase Electric Cooperative Corporation; and Meade County Rural Electric Cooperative Corporation.

**1.22 Network Customer:** An entity receiving transmission

service pursuant to the terms of Big Rivers' Network Integration Transmission Service under Part III of the Tariff.

- 1.23 Network Integration Transmission Service:** The transmission service provided under Part III of the Tariff.
- 1.24 Network Load:** The load that a Network Customer designates for Network Integration Transmission Service under Part III of the Tariff. The Network Customer's Network Load shall include all load served by the output of any Network Resources designated by the Network Customer. A Network Customer may elect to designate less than its total load as Network Load but may not designate only part of the load at a discrete Point of Delivery. Where an Eligible Customer has elected not to designate a particular load at discrete points of delivery as Network Load, the Eligible Customer is responsible for making separate arrangements under Part II of the Tariff for any Point-To-Point Transmission Service that may be necessary for such non-designated load.
- 1.25 Network Operating Agreement:** An executed agreement that contains the terms and conditions under which the Network Customer shall operate its facilities and the

technical and operational matters associated with the implementation of Network Integration Transmission Service under Part III of the Tariff.

**1.26 Network Operating Committee:** A group made up of representatives from the Network Customer(s) and Big Rivers established to coordinate operating criteria and other technical considerations required for implementation of Network Integration Transmission Service under Part III of this Tariff.

**1.27 Network Resource:** Any designated generating resource owned, purchased, or leased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

**1.28 Network Upgrades:** Modifications or additions to transmission-related facilities that are integrated with and support Big Rivers' overall Transmission

System for the general benefit of all users of such  
Transmission System.

**1.29 Non-Firm Point-To-Point Transmission Service:** Point-To-Point Transmission Service under the Tariff that is reserved and scheduled on an as-available basis and is subject to Curtailment or Interruption as set forth in Section 13.7 under Part II of this Tariff. Non-Firm Point-To-Point Transmission Service is available on an hourly basis as Hourly Non-Firm Transmission Service or on a daily, weekly, or monthly basis for renewable terms as Short-Term Non-Firm Transmission Service.

**1.30 Open Access Same-Time Information System (OASIS):** The information system and standards of conduct contained in Part 37 of the Federal Energy Regulatory Commission's regulations and all additional requirements implemented by subsequent FERC orders dealing with OASIS.

**1.31 Part I: Tariff Definitions and Common Service**  
Provisions contained in Sections 2 through 12.

- 1.32 **Part II:** Tariff Sections 13 through 27 pertaining to Point-To-Point Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.
- 1.33 **Part III:** Tariff Sections 28 through 35 pertaining to Network Integration Transmission Service in conjunction with the applicable Common Service Provisions of Part I and appropriate Schedules and Attachments.
- 1.34 **Parties:** Big Rivers and the Transmission Customer receiving service under the Tariff.
- 1.35 **Point(s) of Delivery:** Point(s) on Big Rivers' Transmission System where capacity and energy transmitted by Big Rivers will be made available to the Receiving Party under Part II of the Tariff. The Point(s) of Delivery shall be specified in the Service Agreement for Long-Term Firm Point-to-Point Transmission Service.
- 1.36 **Point(s) of Receipt:** Point(s) of interconnection on Big Rivers' Transmission System where capacity and energy will be made available to Big Rivers by the

Delivering Party under Part II of the Tariff. The Point(s) of Receipt shall be specified in the Service Agreement for Long-Term Firm Point-to-Point Transmission Service.

- 1.37 **Point-To-Point Transmission Service:** The reservation and transmission of capacity and energy on either a firm or non-firm basis from the Point(s) of Receipt to the Point(s) of Delivery under Part II of the Tariff.
- 1.38 **Power Purchaser:** The entity that is purchasing the capacity and energy to be transmitted under the Tariff.
- 1.39 **Receiving Party:** The entity receiving the capacity and energy transmitted by Big Rivers to Point(s) of Delivery.
- 1.40 **Regional Transmission Group (RTG):** A voluntary organization of transmission owners, transmission users and other entities approved by the Federal Energy Regulatory Commission to efficiently coordinate transmission planning (and expansion), operation and use on a regional (and interregional) basis.

- 1.41 Reserved Capacity:** The maximum amount of capacity and energy that Big Rivers agrees to transmit for the Transmission Customer over Big Rivers' Transmission System between the Point(s) of Receipt and the Point(s) of Delivery under Part II of the Tariff. Reserved Capacity shall be expressed in terms of whole megawatts on a sixty (60) minute interval (commencing on the clock hour) basis.
- 1.42 Secondary Point(s) of Receipt of Delivery:** Points of Receipt and/or Point(s) of Delivery other than those specified in a Service Agreement which a transmission customer taking firm service under a Service Agreement desires to use on a non-firm basis pursuant to Section 21.1 under Part II of this Tariff.
- 1.43 Service Agreement:** The initial agreement and any amendments or supplements thereto entered into by the Transmission Customer and Big Rivers for service under the Tariff.
- 1.44 Service Commencement Date:** The date Big Rivers begins to provide service pursuant to the terms of an executed



Service Agreement, or the date Big Rivers begins to provide service in accordance with Section 15.3 or Section 29.1 under the Tariff.

**1.45 Short-Term Firm Point-To-Point Transmission Service:**

Firm Point-To-Point Transmission Service under Part II of the Tariff with a term of less than one year.

**1.46 Short-Term Non-Firm Point to Point Transmission**

**Service:** Non-Firm Transmission Service that is reserved and/or scheduled on a daily, weekly, or monthly basis for renewable terms of not more than one (1) month and charged under Rate Schedule STNF.

**1.47 System Impact Study:** An assessment by Big Rivers of

(i) the adequacy of the Transmission System to accommodate a request for either Firm Point-To-Point Transmission Service or Network Integration Transmission Service and (ii) whether any additional costs may be incurred in order to provide transmission service.

**1.48 Third-Party Sale:** Any sale for resale in interstate commerce to a Power Purchaser that is not designated as

part of Network Load under the Network Integration  
Transmission Service.

**1.49 Transmission Customer:** Any Eligible Customer (or its Designated Agent) that (i) executes a Service Agreement, or (ii) requests in writing that Big Rivers create a proposed unexecuted Service Agreement to receive transmission service under Part II of the Tariff. This term is used in the Part I Common Service Provisions to include customers receiving transmission service under Part II and Part III of this Tariff.

**1.50 Transmission Service:** Point-To-Point Transmission Service provided under Part II of the Tariff on a firm and non-firm basis.

**1.51 Transmission System:** The facilities owned, controlled or operated by Big Rivers that are used to provide transmission service under Part II and Part III of the Tariff.

**1.52 Transmission System Monthly Peak:** The maximum firm usage of Big Rivers' Transmission System in a calendar month.

**2 Initial Allocation and Renewal Procedures**

**2.1 Initial Allocation of Available Transmission**

**Capability:** For purposes of determining whether existing capability on Big Rivers' Transmission System is adequate to accommodate a request for firm service under this Tariff, all Completed Applications for new firm transmission service received during the initial sixty (60) day period commencing with the effective date of the Tariff will be deemed to have been filed simultaneously. A lottery system conducted by an independent party shall be used to assign priorities for Completed Applications filed simultaneously. All Completed Applications for firm transmission service received after the initial sixty (60) day period shall be assigned a priority pursuant to Section 13.2

**2.2 Reservation Priority For Existing Firm Service**

**Customers:** Existing firm service customers (wholesale requirements and transmission-only, with a contract term of one-year or more), have the right to continue to take transmission service from Big Rivers when the contract expires, rolls over or is renewed. This

transmission reservation priority is independent of whether the existing customer continues to purchase capacity and energy from Big Rivers or elects to purchase capacity and energy from another supplier. If at the end of the contract term, Big Rivers' Transmission System cannot accommodate all of the requests for transmission service, the existing firm service customer must agree to accept a contract term at least equal to a competing request by any new Eligible Customer and to pay the current rate in effect for such service. This transmission reservation priority for existing firm service customers is an ongoing right that may be exercised at the end of all firm contract terms of one-year or longer.

**3 Ancillary Services**

Ancillary Services are needed with transmission service to maintain reliability within and among the Control Areas affected by the transmission service. Big Rivers is required to provide, and the Transmission Customer is required to purchase, the following Ancillary Services (i) Scheduling, System Control and

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Dispatch, and (ii) Reactive Supply and Voltage Control from Generation Sources.

In addition, Big Rivers, as Control Area Operator, is required to offer to provide the following ancillary services only to Transmission Customers serving load within Big Rivers' Control Area: (i) Regulation and Frequency Response, (ii) Energy Imbalance Service, (iii) Operating Reserve - Spinning, and (iv) Operating Reserve - Supplemental. Big Rivers will provide these services for a pass through of costs to Big Rivers under arrangements with LEM at LEM's FERC-approved tariff rates. A Transmission Customer serving load within Big Rivers' Control Area is required to acquire these Ancillary Services, either from Big Rivers, from LEM, or from a third party or by self-supply when technically feasible. The Transmission Customer may not decline Big Rivers' offer of these required Ancillary Services unless it demonstrates that it has acquired the Ancillary Services from another source. The Transmission Customer must list in its Application which Ancillary Services it will purchase from Big Rivers.

In the event of unauthorized use of Ancillary Services by a Transmission Customer, Big Rivers will charge such transmission

customer the full cost to Big Rivers for such services, including any penalties imposed by LEM.

The specific Ancillary Services, prices and/or compensation methods are described on the Schedules that are attached to and made a part of the Tariff. Three principal requirements apply to discounts for Ancillary Services provided by Big Rivers in conjunction with its provision of transmission service as follows: (1) any offer of a discount made by Big Rivers must be announced to all Eligible Customers solely by posting on the OASIS, (2) any customer-initiated requests for discounts (including requests for use by Big Rivers' wholesale merchant or any affiliate's use) must occur solely by posting on the OASIS, and (3) once a discount is negotiated, details must be offered for the same period to all Eligible Customers on Big Rivers' system. Sections 3.1 through 3.6 below list the six Ancillary Services.

**3.1 Scheduling, System Control and Dispatch Service:** The rates and/or methodology are described in Schedule 1.

**3.2 Reactive Supply and Voltage Control from Generation Sources Service:** The rates and/or methodology are described in Schedule 2 and will amount to a flow

through of the charges assessed Big Rivers under LEM's tariff.

3.3 **Regulation and Frequency Response Service:** This service is described in Schedule 3 and will amount to a flow through of the charges assessed Big Rivers under LEM's tariff.

3.4 **Energy Imbalance Service:** This service is described in Schedule 4 and will amount to a flow through of the charges assessed Big Rivers under LEM's tariff when service is obtained from LEM.

3.5 **Operating Reserve - Spinning Reserve Service:** This service is described in Schedule 5 and will amount to a flow through of the charges assessed Big Rivers under LEM's tariff when service is obtained from LEM.

3.6 **Operating Reserve - Supplemental Reserve Service:** This service is described in Schedule 6 and will amount to a flow through of the charges assessed Big Rivers under LEM's tariff when service is obtained from LEM.

4 **Open Access Same-Time Information System (OASIS)**

Terms and conditions regarding Open Access Same-Time Information System and standards of conduct are set forth in 18 CFR § 37 of the Federal Energy Regulatory Commission's regulations (Open Access Same-Time Information System and Standards of Conduct for Public Utilities). Big Rivers will adopt an OASIS meeting FERC's Requirements, and will implement an OASIS as required for public utilities by FERC, either alone or in coordination with other utilities in the region. In the event available transmission capability as posted on the OASIS is insufficient to accommodate a request for firm transmission service, additional studies may be required as provided by this Tariff pursuant to Sections 19 and 32.

5      **[Reserved for Future Use]**

6      **Reciprocity**

A Transmission Customer receiving transmission service under this Tariff agrees to provide comparable transmission service that it is capable of providing to Big Rivers on similar terms and conditions over facilities used for the transmission of electric energy owned, controlled or operated by the Transmission



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Customer and over facilities used for the transmission of electric energy owned, controlled, or operated by the Transmission Customer's corporate affiliates. A Transmission Customer that is a member of a power pool or Regional Transmission Group also agrees to provide comparable transmission service to the members of such power pool and Regional Transmission Group on similar terms and conditions over facilities used for the transmission of electric energy owned, controlled or, operated by the Transmission Customer and over facilities used for the transmission of electric energy owned, controlled, or operated by the Transmission Customer's corporate affiliates.

This reciprocity requirement applies not only to the Transmission Customer that obtains transmission service under the Tariff, but also to all parties to a transaction that involves the use of transmission service under the Tariff, including the power seller, buyer and any intermediary, such as a power marketer. This reciprocity requirement also applies to any Eligible Customer that owns, controls, or operates transmission facilities that uses an intermediary, such as a power marketer, to request transmission service under the Tariff. If the

Transmission Customer does not own, control, or operate transmission facilities, it must include in its Application a sworn statement of one of its duly authorized officers or other representatives that the purpose of its Application is not to assist an Eligible Customer to avoid the requirements of this provision.

**7 Billing and Payment**

**7.1 Billing Procedure:** Within a reasonable time after the first day of each month, Big Rivers shall submit an invoice to the Transmission Customer for the charges for all services furnished under the Tariff during the preceding month. The invoice shall be paid by the Transmission Customer by the first working day after the twenty-fourth day of the month. All payments shall be made in immediately available funds payable to Big Rivers, or by wire transfer to Farmers Bank of Henderson, Kentucky, ABA #083900538, for credit to Big Rivers' Account No. 1085559, or such other financial institution or account number as Big Rivers shall specify in writing.

**7.2 Interest on Unpaid Balances:** Interest on any unpaid amounts (including amounts placed in escrow) shall be calculated using the one year United States Treasury Bill rates effective as of the first business day of the calendar month in which an unpaid balance becomes overdue. Interest on delinquent amounts shall be calculated from the due date of the bill to the date of payment, with interest calculated and pro-rated for that portion of the month in which amounts are outstanding. The applicable interest rate shall be recalculated each month using the new one year United States Treasury Bill rate effective as of the first business day of the month. When payments are made by mail, bills shall be considered as having been paid on the date of receipt by Big Rivers

**7.3 Customer Default:** In the event the Transmission Customer fails, for any reason other than a billing dispute as described below, to make payment to Big Rivers on or before the due date as described above, and such failure of payment is not corrected within thirty (30) calendar days after Big Rivers notifies the

Transmission Customer to cure such failure, a default by the Transmission Customer shall be deemed to exist. Upon the occurrence of a default, Big Rivers may terminate service subject to any applicable regulatory approval or subject to the dispute resolution procedures of Section 11 if no regulatory approval is applicable; provided, however, that Big Rivers shall be entitled to terminate service for non-payment of undisputed bills without application of the Section 11 dispute resolution procedures if no regulatory approvals are required. In the event of a billing dispute between Big Rivers and the Transmission Customer, Big Rivers will continue to provide service under the Service Agreement as long as the Transmission Customer (i) continues to make all payments not in dispute, and (ii) pays into an independent escrow account the portion of the invoice in dispute, pending resolution of such dispute. If the Transmission Customer fails to meet these two requirements for continuation of service, then Big Rivers may provide

notice to the Transmission Customer of its intention to suspend service in sixty (60) days.

**8 Accounting for Big Rivers' Use of the Tariff:**

Big Rivers shall record the following amounts, as outlined below.

**8.1 Transmission Revenues:** Include in a separate operating revenue account or subaccount the revenues it receives from Transmission Service when making Third-Party Sales under Part II of the Tariff.

**8.2 Study Costs and Revenues:** Include in a separate transmission operating expense account or subaccount, costs properly chargeable to expense that are incurred to perform any System Impact Studies or Facilities Studies which Big Rivers conducts to determine if it must construct new transmission facilities or upgrades necessary for its own uses, including making Third-Party Sales under the Tariff; and include in a separate operating revenue account or subaccount the revenues received for System Impact Studies or Facilities Studies performed when such amounts are separately

stated and identified in the Transmission Customer's  
billing under the Tariff.

**9 Regulatory Filings**

Nothing contained in the Tariff or any Service Agreement thereunder shall be construed as affecting in any way the right of Big Rivers to unilaterally make changes in rates, terms and conditions, charges, classifications of service, rules or regulations of this Tariff. This Tariff, and any Service Agreement entered into thereunder, will terminate immediately, at Big Rivers' option, if (i) FERC declines to issue a declaratory order approving this Tariff as complying with the reciprocity provisions of FERC's Order No. 888; (ii) if a FERC order approving the Tariff as complying with reciprocity is vacated on appeal; or (iii) if the Commission subsequently alters its decision in the declaratory order that this tariff complies with the reciprocity requirement and requires modifications to this tariff that Big Rivers finds unacceptable. In the event Big Rivers terminates this Tariff pursuant to the above reasons, Big Rivers will continue to provide firm and non-firm transmission service to existing Transmission Customers pursuant to contractual commitments specified in Service Agreements so long

as such Transmission Customers continue to grant reciprocal access to their own transmission systems or those of any affiliates pursuant to Section 6 of this Tariff.

Nothing contained in the Tariff or any Service Agreement thereunder shall be construed as affecting in any way the ability of any Party receiving service under the Tariff to exercise any rights under the Federal Power Act and pursuant to FERC's rules and regulations promulgated thereunder, including any rights exercisable under Section 211 of the Federal Power Act.

10 Force Majeure and Indemnification

10.1 Force Majeure: An event of Force Majeure means any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any Curtailment, order, regulation or restriction imposed by governmental military or lawfully established civilian authorities, or any other cause beyond a Party's control. A Force Majeure event does not include an act of negligence or intentional wrongdoing. Neither Big Rivers nor the Transmission Customer will be considered in default as to any

obligation under this Tariff if prevented from fulfilling the obligation due to an event of Force Majeure. However, a Party whose performance under this Tariff is hindered by an event of Force Majeure shall make all reasonable efforts to perform its obligations under this Tariff.

**10.2 Indemnification:** The Transmission Customer shall at all times indemnify, defend, and save Big Rivers harmless from, any and all damages, losses, claims, including claims and actions relating to injury to or death of any person or damage to property, demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from Big Rivers' performance of its obligations under this Tariff on behalf of the Transmission Customer, except in cases of negligence or intentional wrongdoing by Big Rivers.

## **11 Creditworthiness**

For the purpose of determining the ability of the Transmission Customer to meet its obligations related to service hereunder, Big Rivers may require reasonable credit review



procedures. This review shall be conducted in accordance with standard commercial practices. In addition, Big Rivers may require the Transmission Customer to provide and maintain in effect during the term of the Service Agreement, an unconditional and irrevocable letter of credit as security to meet its responsibilities and obligations under the Tariff, or an alternative form of security proposed by the Transmission Customer and acceptable to Big Rivers and consistent with commercial practices established by the Uniform Commercial Code that protects Big Rivers against the risk of non-payment.

## 12 Dispute Resolution Procedures

12.1 Internal Dispute Resolution Procedures: Any dispute between a Transmission Customer and Big Rivers involving transmission service under the Tariff shall be referred to a designated senior representative of Big Rivers and a senior representative of the Transmission Customer for resolution on an informal basis as promptly as practicable. In the event the designated representatives are unable to resolve the dispute within thirty (30) days or such other period as the Parties may agree upon by mutual agreement, such

dispute may be submitted to arbitration and resolved in accordance with the arbitration procedures set forth below.

**12.2 External Arbitration Procedures:** Any arbitration initiated under the Tariff shall be conducted before a single neutral arbitrator appointed by the Parties. If the Parties fail to agree upon a single arbitrator within ten (10) days of the referral of the dispute to arbitration, each Party shall choose one arbitrator who shall sit on a three-member arbitration panel. The two arbitrators so chosen shall within twenty (20) days select a third arbitrator to chair the arbitration panel. In either case, the arbitrators shall be knowledgeable in electric utility matters, including electric transmission and bulk power issues, and shall not have any current or past substantial business or financial relationships with any party to the arbitration (except prior arbitration). The arbitrator(s) shall provide each of the Parties an opportunity to be heard and, except as otherwise provided herein, shall generally conduct the

arbitration in accordance with the Commercial Arbitration Rules of the American Arbitration Association and any applicable regulations or Regional Transmission Group rules.

**12.3 Arbitration Decisions:** Unless otherwise agreed, the arbitrator(s) shall render a decision within ninety (90) days of appointment and shall notify the Parties in writing of such decision and the reasons therefor. The arbitrator(s) shall be authorized only to interpret and apply the provisions of the Tariff and any Service Agreement entered into under the Tariff and shall have no power to modify or change any of the above in any manner. The decision of the arbitrator(s) shall be final and binding upon the Parties, and judgment on the award may be entered in any court having jurisdiction. The decision of the arbitrator(s) may be appealed solely on the grounds that the conduct of the arbitrator(s), or the decision itself, violated the standards set forth in the Federal Arbitration Act and/or the Administrative Dispute Resolution Act.

12.4 **Costs:** Each Party shall be responsible for its own costs incurred during the arbitration process and for the following costs, if applicable:

- (A) the cost of the arbitrator chosen by the Party to sit on the three member panel and one half of the cost of the third arbitrator chosen; or
- (B) one half the cost of the single arbitrator jointly chosen by the Parties.

12.5 **Rights Under The Federal Power Act:** Nothing in this section shall restrict the rights of any party to file an Application for Transmission Services with the Commission under Section 211 of the Federal Power Act.

II. POINT-TO-POINT TRANSMISSION SERVICE

**Preamble**

Big Rivers will provide Firm and Non-Firm Point-To-Point Transmission Service pursuant to the applicable terms and conditions of this Tariff. Point-To-Point Transmission Service is for the receipt of capacity and energy at designated Point(s) of Receipt and the transmission of such capacity and energy to designated Point(s) of Delivery.

**13 Nature of Firm Point-To-Point Transmission Service**

**13.1 Term:** The minimum term of Firm Point-To-Point

Transmission Service shall be one day and the maximum term shall be specified in the Service Agreement.

**13.2 Reservation Priority:** Long-Term Firm Point-To-Point

Transmission Service shall be available on a first-come, first-served basis *i.e.*, in the chronological sequence in which each Transmission Customer has reserved service. Reservations for Short-Term Firm Point-To-Point Transmission Service will be conditional based upon the length of the requested transaction. If the Transmission System becomes oversubscribed, requests for longer term service may preempt requests

for shorter term service up to the following deadlines:  
one day before the commencement of daily service, one week before the commencement of weekly service, and one month before the commencement of monthly service.  
Before the conditional reservation deadline, if available transmission capability is insufficient to satisfy all Applications, an Eligible Customer with a reservation for shorter term service has the right of first refusal to match any longer term reservation before losing its reservation priority. A longer term competing request for Short-Term Firm Point-to-Point Transmission Service will be granted if the Eligible Customer with the right of first refusal does not agree to match the competing request within 24 hours (or earlier if necessary to comply with the scheduling deadlines provided in section 13.8) from being notified by Big Rivers of a longer-term competing request for Short-Term Firm Point-to-Point Transmission Service.  
After the conditional reservation deadline, service will commence pursuant to the terms of Part II of the Tariff. Firm Point-To-Point Transmission Service will

always have a reservation priority over Non-Firm Point-To-Point Transmission Service under the Tariff. All Long-Term Firm Point-To-Point Transmission Service will have equal reservation priority with Native Load Customers and Network Customers. Reservation priorities for existing firm service customers are provided in Section 2.2.

**13.3 Use of Firm Transmission Service by Big Rivers:** Big Rivers will be subject to the rates, terms and conditions of Part II of the Tariff when making Third-Party Sales under agreements executed after the date this Tariff becomes effective. Big Rivers will maintain separate accounting, pursuant to Section 8, for any use of the Point-To-Point Transmission Service to make Third-Party Sales.

**13.4 Service Agreements:** Big Rivers shall offer a standard form Firm Point-To-Point Transmission Service Agreement (Attachment A) to an Eligible Customer when it submits a Completed Application for Long-Term Firm Point-To-Point Transmission Service. Big Rivers shall offer a

standard form Firm Point-to-Point Transmission Service Agreement (Attachment A) to an Eligible Customer when it first submits a Completed Application for Short-Term Firm Point-to-Point Transmission Service pursuant to the Tariff.

**13.5 Transmission Customer Obligations for Facility**

**Additions or Redispatch Costs:** In cases where Big Rivers determines that the Transmission System is not capable of providing Firm Point-To-Point Transmission Service without (1) degrading or impairing the reliability of service to Native Load Customers, Network Customers, and other Transmission Customers taking Firm Point-To-Point Transmission Service, or (2) interfering with Big Rivers' ability to meet prior firm contractual commitments to others, Big Rivers will be obligated to expand or upgrade its Transmission System pursuant to the terms of Section 15.4. The Transmission Customer must agree to compensate Big Rivers for any necessary transmission facility additions pursuant to the terms of Section 27. To the extent Big Rivers can relieve any system constraint



more economically by arranging for redispatch of generating resources located in Big Rivers' control area rather than through constructing Network Upgrades, it shall do so, provided that the Eligible Customer agrees to compensate Big Rivers and/or the party whose resources are redispatched pursuant to the terms of Section 27. Any redispatch, Network Upgrade, or Direct Assignment Facilities costs to be charged to the Transmission Customer on an incremental basis under the Tariff will be specified in the Service Agreement prior to initiating service.

**13.6 Curtailment of Firm Transmission Service:** In the event that a Curtailment on Big Rivers' Transmission System, or a portion thereof, is required to maintain reliable operation of such system, Curtailments will be made on a non-discriminatory basis to the transaction(s) that effectively relieve the constraint. If multiple transactions require Curtailment, to the extent practicable and consistent with Good Utility Practice, Big Rivers will curtail service to Network Customers and Transmission Customers taking Firm Point-to-Point

Transmission Service on a basis comparable to Big Rivers' Native Load Customers. All Curtailments will be made on a non-discriminatory basis, however, Non-Firm Point-To-Point Transmission Service shall be subordinate to Firm Transmission Service. When Big Rivers determines that an electrical emergency exists on its Transmission System and implements emergency procedures to Curtail Firm Transmission Service, the Transmission Customer shall make the required reductions upon request of Big Rivers. However, Big Rivers reserves the right to Curtail, in whole or in part, any Firm Transmission Service provided under the Tariff when, in Big Rivers' sole discretion, an emergency or other unforeseen condition impairs or degrades the reliability of its Transmission System. Big Rivers will notify all affected Transmission Customers in a timely manner of any scheduled Curtailments.

**13.7 Classification of Firm Transmission Service:**

- (a) The Transmission Customer taking Firm Point-To-Point Transmission Service may (1) change its

Receipt and Delivery Points to obtain service on a non-firm basis over Secondary Points of Receipt and/or Delivery consistent with the terms of Section 22.1 or (2) request a modification of the Points of Receipt or Delivery on a firm basis pursuant to the terms of Section 22.2.

- (b) The Transmission Customer may purchase transmission service to make sales of capacity and energy from multiple generating units that are on Big Rivers' Transmission System. For such a purchase of transmission service, the resources will be designated as multiple Points of Receipt, unless the multiple generating units are at the same generating plant, in which case the units would be treated as a single Point of Receipt.
- (c) Big Rivers shall provide firm deliveries of capacity and energy from the Point(s) of Receipt to the Point(s) of Delivery. Each Point of Receipt at which firm transmission capacity is reserved by the Transmission Customer shall be set forth in the Firm Point-To-Point Service Agreement

for Long-Term Firm Transmission Service along with a corresponding capacity reservation associated with each Point of Receipt. Points of Receipt and corresponding capacity reservations shall be as mutually agreed upon by the Parties for Short-Term Firm Transmission. Each Point of Delivery at which firm transmission capacity is reserved by the Transmission Customer shall be set forth in the Firm Point-To-Point Service Agreement for Long-Term Firm Transmission Service along with a corresponding capacity reservation associated with each Point of Delivery. Points of Delivery and corresponding capacity reservations shall be as mutually agreed upon by the Parties for Short-Term Firm Transmission. The greater of either (1) the sum of the capacity reservations at the Point(s) of Receipt, or (2) the sum of the capacity reservations at the Point(s) of Delivery shall be the Transmission Customer's Reserved Capacity. The Transmission Customer will be billed for its Reserved Capacity under the terms of Schedule 6.

The Transmission Customer may not exceed its firm capacity reserved at each Point of Receipt and each Point of Delivery except as otherwise specified in Section 22. Big Rivers shall specify the rate treatment and all related terms and conditions applicable in the event that a Transmission Customer (including Third-Party Sales by Big Rivers) exceeds its firm reserved capacity at any Point of Receipt or Point of Delivery.

**13.8 Scheduling of Firm Point-To-Point Transmission Service:**

Schedules for the Transmission Customer's Firm Point-To-Point Transmission Service must be submitted to Big Rivers no later than 10:00 a.m. of the day prior to commencement of such service. Schedules submitted after 10:00 a.m. of the day prior to commencement service will be accommodated, if practicable. Hour-to-hour schedules of any capacity and energy that is to be delivered must be stated in increments of one (1) MW per hour. Transmission Customers within Big Rivers' service area with multiple requests for Transmission Service at a Point of Receipt, each of which is under

one (1) MW per hour, may consolidate their service requests at a common point of receipt into units of one (1) MW per hour for scheduling and billing purposes. Scheduling changes will be permitted up to twenty (20) minutes before the start of the next clock hour provided that the Delivering Party and Receiving Party also agree to the schedule modification. Big Rivers will furnish to the Delivering Party's system operator, hour-to-hour schedules equal to those furnished by the Receiving Party (unless reduced for losses) and shall deliver the capacity and energy provided by such schedules. Should the Transmission Customer, Delivering Party or Receiving Party revise or terminate any schedule, such party shall immediately notify Big Rivers, and Big Rivers shall have the right to adjust accordingly the schedule for capacity and energy to be received and to be delivered.

**14 Nature of Non-Firm Point-To-Point Transmission Service**

**14.1 Term: Non-Firm Point-To-Point Transmission Service**

will be available for periods ranging from one (1) hour to one (1) month. However, a Purchaser of Non-Firm

Point-To-Point Transmission Service will be entitled to reserve a sequential term of Short-Term Non-Firm Point-to-Point Transmission Service (such as a sequential monthly term without having to wait for the initial term to expire before requesting another monthly term) so that the total-time period for which the reservation applies is greater than one month, subject to the requirements of Section 18.3

**14.2 Reservation Priority: Non-Firm Point-To-Point**

Transmission Service shall be available from transmission capability in excess of that needed for reliable service to Native Load Customers, Network Customers and other Transmission Customers taking Long-Term and Short-Term Firm Point-To-Point Transmission Service. A higher priority will be assigned to reservations with a longer duration of service. In the event the Transmission System is constrained, competing requests of equal duration will be prioritized based on the highest price offered by the Eligible Customer for the Transmission Service. Eligible Customers that have already reserved shorter term service have the right of

first refusal to match any longer term reservation before being preempted. A longer term competing request for Non-Firm Point-to-Point Transmission Service will be granted if the Eligible Customer with the right of first refusal does not agree to match the competing request: (a) immediately for hourly Non-Firm Point-to-Point Transmission Service after notification by Big Rivers; and, (b) within 24 hours (or earlier if necessary to comply with the scheduling deadlines provided in Section 14.6) for Non-Firm Point-to-Point Transmission Service other than hourly transactions after notification by Big Rivers. Transmission service for Network Customers from resources other than designated Network Resources will have a higher priority than any Non-Firm Point-To-Point Transmission Service. Non-Firm Point-To-Point Transmission Service over secondary Point(s) of Receipt and Point(s) of Delivery will have the lowest reservation priority under the Tariff.

**14.3 Use of Non-Firm Point-To-Point Transmission Service by Big Rivers:** Big Rivers will be subject to the rates,



terms and conditions of Part II of the Tariff when making Third-Party Sales under agreements executed after the date this tariff goes into effect. Big Rivers will maintain separate accounting, pursuant to Section 8, for any use of Non-Firm Point-To-Point Transmission Service to make Third-Party Sales.

**14.4 Service Agreements:** Big Rivers shall offer a standard form Non-Firm Point-To-Point Transmission Service Agreement (Attachment B) to an Eligible Customer when it first submits a Completed Application for Non-Firm Point-To-Point Transmission Service pursuant to the Tariff.

**14.5 Classification of Non-Firm Point-To-Point Transmission Service:** Non-Firm Point-To-Point Transmission Service shall be offered under terms and conditions contained in Part II of the Tariff. Big Rivers undertakes no obligation under the Tariff to plan its Transmission System in order to have sufficient capacity for Non-Firm Point-To-Point Transmission Service. Parties requesting Non-Firm Point-To-Point Transmission Service for the transmission of firm power do so with the full

realization that such service is subject to availability and to Curtailment or Interruption under the terms of the Tariff. Non-Firm Transmission Service in excess of non-firm capacity reservations made on Big Rivers' OASIS (including all unscheduled uses of transmission by third-parties) shall be billed at 120% of the applicable Rate Schedule HNF rates. Non-Firm Point-To-Point Transmission Service shall include (i) Hourly Non-Firm Transmission Service -- Transmission of energy on an hourly basis under Schedule HNF. (ii) Short-Term Non-Firm Transmission Service -- Transmission of scheduled short-term capacity and energy on a short term, non-firm basis which is reserved on a sequential daily, weekly or monthly basis under Schedule STNF, but not to exceed one month's reservation for any one Application, under Schedule 7.

**14.6 Scheduling of Non-Firm Point-To-Point Transmission**

**Service:** Schedules for Non-Firm Point-To-Point Transmission Service must be submitted to Big Rivers no later than 2:00 p.m. of the day prior to commencement of such service unless otherwise mutually agreed.

Schedules submitted after 2:00 p.m. of the day prior to commencement of service will be accommodated, if practicable. Hour-to-hour schedules of energy that is to be delivered must be stated in increments of one (1) MW per hour. Transmission Customers within Big Rivers' service area with multiple requests for Transmission Service at a Point of Receipt, each of which is under one (1) MW per hour, may consolidate their schedules at a common Point of Receipt into units of one (1) MW per hour. Scheduling changes will be permitted up to twenty (20) minutes before the start of the next clock hour provided that the Delivering Party and Receiving Party also agree to the schedule modification. Big Rivers will furnish to the Delivering Party's system operator, hour-to-hour schedules equal to those furnished by the Receiving Party (unless reduced for losses) and shall deliver the capacity and energy provided by such schedules. Should the Transmission Customer, Delivering Party, or Receiving Party revise or terminate any schedule, such party shall immediately notify Big Rivers and Big Rivers shall have the right

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to adjust accordingly the schedule for capacity and energy to be received and to be delivered. Until such time as Big Rivers develops its OASIS, all Non-Firm Transmission Service Schedules and any changes thereto shall be submitted to Big Rivers at:

Telephone No. (502) 827-9553

Telefax No. (502) 827-2855.

Thereafter, all Non-firm Transmission Service Schedules shall be submitted directly onto Big Rivers' OASIS in accordance with FERC approved procedures.

**14.7 Curtailment or Interruption of Service:** Big Rivers

reserves the right to Curtail, in whole or in part, Non-Firm Point-To-Point Transmission Service provided under the Tariff for reliability reasons when an emergency or other unforeseen condition threatens to impair or degrade the reliability of its Transmission System. Big Rivers reserves the right to Interrupt, in whole or in part, Non-Firm Point-To-Point Transmission Service provided under the Tariff for economic reasons in order to accommodate (1) a request for Firm Transmission Service, (2) a request for Non-Firm Point-

To-Point Transmission Service of greater duration, (3) a request for Non-Firm Point-To-Point Transmission Service of equal duration with a higher price, or (4) transmission service for Network Customers from non-designated resources. Big Rivers also will discontinue or reduce service to the Transmission Customer to the extent that deliveries for transmission are discontinued or reduced at the Point(s) of Receipt. Where required, Curtailments or Interruptions will be made on a non-discriminatory basis to the transaction(s) that effectively relieve the constraint, however, Non-Firm Point-To-Point Transmission Service shall be subordinate to Firm Transmission Service. If multiple transactions require Curtailment or Interruption, to the extent practicable and consistent with Good Utility Practice, Curtailments or Interruptions will be made to transactions of the shortest term (e.g., hourly non-firm transactions will be Curtailed or Interrupted before daily non-firm transactions and daily non-firm transactions will be Curtailed or Interrupted before weekly non-firm

transactions). Transmission service for Network Customers from resources other than designated Network Resources will have a higher priority than any Non-Firm Point-To-Point Transmission Service under the Tariff. Non-Firm Point-To-Point Transmission Service over Secondary Point(s) of Receipt and Delivery will have a lower priority than any Non-Firm Point-To-Point Transmission Service under the Tariff.

**15 Service Availability:** Big Rivers will provide advance notice of Curtailment or Interruption where such notice can be provided consistent with Good Utility Practice.

**15.1 General Conditions:** Big Rivers will provide Firm and Non-Firm Point-To-Point Transmission Service over, on, or across its Transmission System to any Transmission Customer that has met the requirements of Section 16.

**15.2 Determination of Available Transmission Capability:**

A description of Big Rivers' specific methodology for assessing available transmission capability posted on Big Rivers' OASIS (described in Section 4 of this Tariff) is contained in Attachment C of the Tariff. In

the event sufficient transmission capability may not exist to accommodate a service request, Big Rivers will respond by performing a System Impact Study.

**15.3 Initiating Service in the Absence of an Executed**

**Service Agreement:** If Big Rivers and a Transmission Customer requesting Firm or Non-Firm Point-To-Point Transmission Service cannot agree on all the terms and conditions of a Point-To-Point Service Agreement, Big Rivers shall submit to the Transmission Customer, within thirty (30) days after the date the Transmission Customer provides written notification directing Big Rivers to do so, an unexecuted Point-To-Point Service Agreement containing terms and conditions deemed appropriate by Big Rivers for such requested Transmission Service. Big Rivers shall commence providing Transmission Service subject to the Transmission Customer agreeing to (i) compensate Big Rivers at its currently effective rate, and (ii) comply with the terms and conditions of the Tariff including posting appropriate security deposits in accordance with the terms of Section 17.3. In the event a

Transmission Customer accepting transmission service from Big Rivers under an unexecuted agreement disagrees with the terms and conditions of such service, that customer shall have recourse to the dispute resolution procedures of Section 12 of the Tariff.

**15.4 Obligation to Provide Transmission Service that**

**Requires Expansion or Modification of the Transmission**

**System:** If Big Rivers determines that it cannot accommodate a Completed Application for Firm Point-To-Point Transmission Service because of insufficient capability on its Transmission System, Big Rivers will use due diligence to expand or modify its Transmission System to provide the requested Firm Transmission Service, provided the Transmission Customer agrees to compensate Big Rivers for such costs pursuant to the terms of Section 27. Big Rivers will conform to Good Utility Practice in determining the need for new facilities and in the design and construction of such facilities. This obligation applies only to those facilities that Big Rivers has the right to expand and/or modify.



15.5 **Deferral of Service:** Big Rivers may defer providing transmission service until it completes construction of new transmission facilities or upgrades needed to provide Firm Point-To-Point Transmission Service whenever Big Rivers determines that providing the requested service would, without such new facilities or upgrades, impair or degrade reliability to any existing firm services.

15.6 **Other Transmission Service Schedules:** Eligible Customers receiving transmission service under other agreements may continue to receive transmission service under those agreements until such time as those agreements are modified by the parties or an applicable regulatory commission, or expire.

15.7 **Real Power Losses:** Real Power Losses are associated with all transmission service. Big Rivers is not obligated to provide Real Power Losses to Transmission Customers. The Transmission Customer is responsible for replacing losses associated with all transmission service as such losses are calculated by Big Rivers.

Big Rivers shall recalculate average system Real Power Loss factors on a yearly basis according to the methodology specified in Schedule 10.

**16 Transmission Customer Responsibilities**

**16.1 Conditions Required of Transmission Customers:** Point-To-Point Transmission Service shall be provided by Big Rivers only if the following conditions are satisfied by the Transmission Customer:

- a. The Transmission Customer has pending a Completed Application for service;
- b. The Transmission Customer meets the creditworthiness criteria set forth in Section 11;
- c. The Transmission Customer will have arrangements in place for any other transmission service necessary to effect the delivery from the generating source to Big Rivers prior to the time service under Part II of the Tariff commences;
- d. The Transmission Customer agrees to pay for any facilities constructed and chargeable to such Transmission Customer under Part II of the Tariff,

whether or not the Transmission Customer takes service for the full term of its reservation; and

e. The Transmission Customer has executed a Point-To-Point Service Agreement or has agreed to receive service pursuant to Section 15.3.

**16.2 Transmission Customer Responsibility for Third-Party**

**Arrangements:** Any scheduling arrangements that may be required by other electric systems shall be the responsibility of the Transmission Customer requesting service. The Transmission Customer shall provide, unless waived by Big Rivers, notification to Big Rivers identifying such systems and authorizing them to schedule the capacity and energy to be transmitted by Big Rivers pursuant to Part II of the Tariff on behalf of the Receiving Party at the Point of Delivery or the Delivering Party at the Point of Receipt. However, Big Rivers will undertake reasonable efforts to assist the Transmission Customer in making such arrangements, including without limitation, providing any information or data required by such other electric system pursuant to Good Utility Practice.

17 Procedures for Arranging Firm Point-To-Point Transmission  
Service

17.1 Application: A request for Firm Point-To-Point

Transmission Service for periods of one year or longer  
must contain a written Application to:

Big Rivers Electric Corporation  
201 Third Street, P.O. Box 24  
Henderson Kentucky 42420  
Telephone No. (502) 827-2561  
Telefax No. (502) 827-2558

at least sixty (60) days in advance of the calendar  
month in which service is to commence. Big Rivers will  
consider requests for such firm service on shorter  
notice when feasible. Requests for Short-Term Firm  
Transmission Service shall be subject to expedited  
procedures that shall be negotiated between the Parties  
within the time constraints provided in Section 17.5.  
All Firm Point-To-Point Transmission Service requests  
should be submitted by entering the information listed  
below on Big Rivers' OASIS. Prior to implementation of  
Big Rivers' OASIS, a Completed Application may be  
submitted by (i) transmitting the required information  
to Big Rivers by telefax, or (ii) providing the

information by telephone over Big Rivers' time recorded telephone line. Each of these methods will provide a time-stamped record for establishing the priority of the Application.

**17.2 Completed Application:** A Completed Application shall provide all of the information included in the Federal Energy Regulatory Commission's regulations at 18 CFR § 2.20, including but not limited to the following:

- (i) The identity, address, telephone number and facsimile number of the entity requesting service;
- (ii) A statement that the entity requesting service is, or will be upon commencement of service, an Eligible Customer under the Tariff;
- (iii) The location of the Point(s) of Receipt and Point(s) of Delivery and the identities of the Delivering Parties and the Receiving Parties;

- (iv) The location of the generating facility(ies) supplying the capacity and energy and the location of the load ultimately served by the capacity and energy transmitted. Big Rivers will treat this information as confidential except to the extent that disclosure of this information is required by this Tariff, by regulatory or judicial order, for reliability purposes pursuant to Good Utility Practice or pursuant to RTG transmission information sharing agreements. Big Rivers shall treat this information consistent with the standards of conduct contained in Part 37 of FERC's regulations;
- (v) A description of the supply characteristics of the capacity and energy to be delivered;
- (vi) An estimate of the capacity and energy expected to be delivered to the Receiving Party;

(vii) The Service Commencement Date and the term of the requested Transmission Service; and

(viii) The transmission capacity requested for each Point of Receipt and each Point of Delivery on Big Rivers' Transmission System; customers may combine their requests for service in order to satisfy the minimum transmission capacity requirement of one (1) MW.

Big Rivers shall treat this information consistent with the standards of conduct contained in Part 37 of FERC's regulations.

17.3 Deposit: A Completed Application for Firm Point-To-Point Transmission Service also shall include a deposit of either one month's charge for Reserved Capacity or the full charge for Reserved Capacity for service requests of less than one month. If the Application is rejected by Big Rivers because it does not meet the conditions for service as set forth herein, or in the case of requests for service arising in connection with losing bidders in a Request For Proposals (RFP), said

deposit shall be returned with interest calculated using one year United States Treasury Bill rates during each month while the deposit is held less any reasonable costs incurred by Big Rivers in connection with the review of the losing bidder's Application. The deposit also will be returned with interest calculated as above, less any reasonable costs incurred by Big Rivers, if Big Rivers is unable to complete new facilities needed to provide the service. If an Application is withdrawn or the Eligible Customer decides not to enter into a Service Agreement for Firm Point-To-Point Transmission Service, the deposit shall be refunded in full, with interest calculated as above, less reasonable costs incurred by Big Rivers to the extent such costs have not already been recovered by Big Rivers from the Eligible Customer. Big Rivers will provide to the Eligible Customer a complete accounting of all costs deducted from the refunded deposit, which the Eligible Customer may contest if there is a dispute concerning the deducted costs. Deposits associated with construction of new facilities are subject to the



17 Procedures for Arranging Firm Point-To-Point Transmission  
Service

17.1 Application: A request for Firm Point-To-Point  
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must contain a written Application to:

Big Rivers Electric Corporation  
201 Third Street, P.O. Box 24  
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Telephone No. (502) 827-2561  
Telefax No. (502) 827-2558

at least sixty (60) days in advance of the calendar  
month in which service is to commence. Big Rivers will  
consider requests for such firm service on shorter  
notice when feasible. Requests for Short-Term Firm  
Transmission Service shall be subject to expedited  
procedures that shall be negotiated between the Parties  
within the time constraints provided in Section 17.5.  
All Firm Point-To-Point Transmission Service requests  
should be submitted by entering the information listed  
below on Big Rivers' OASIS. Prior to implementation of  
Big Rivers' OASIS, a Completed Application may be  
submitted by (i) transmitting the required information  
to Big Rivers by telefax, or (ii) providing the

information by telephone over Big Rivers' time recorded telephone line. Each of these methods will provide a time-stamped record for establishing the priority of the Application.

**17.2 Completed Application:** A Completed Application shall provide all of the information included in the Federal Energy Regulatory Commission's regulations at 18 CFR § 2.20, including but not limited to the following:

- (i) The identity, address, telephone number and facsimile number of the entity requesting service;
- (ii) A statement that the entity requesting service is, or will be upon commencement of service, an Eligible Customer under the Tariff;
- (iii) The location of the Point(s) of Receipt and Point(s) of Delivery and the identities of the Delivering Parties and the Receiving Parties;

- (iv) The location of the generating facility(ies) supplying the capacity and energy and the location of the load ultimately served by the capacity and energy transmitted. Big Rivers will treat this information as confidential except to the extent that disclosure of this information is required by this Tariff, by regulatory or judicial order, for reliability purposes pursuant to Good Utility Practice or pursuant to RTG transmission information sharing agreements. Big Rivers shall treat this information consistent with the standards of conduct contained in Part 37 of FERC's regulations;
- (v) A description of the supply characteristics of the capacity and energy to be delivered;
- (vi) An estimate of the capacity and energy expected to be delivered to the Receiving Party;

- (vii) The Service Commencement Date and the term of the requested Transmission Service; and
  
- (viii) The transmission capacity requested for each Point of Receipt and each Point of Delivery on Big Rivers' Transmission System; customers may combine their requests for service in order to satisfy the minimum transmission capacity requirement of one (1) MW.

Big Rivers shall treat this information consistent with the standards of conduct contained in Part 37 of FERC's regulations.

**17.3 Deposit:** A Completed Application for Firm Point-To-Point Transmission Service also shall include a deposit of either one month's charge for Reserved Capacity or the full charge for Reserved Capacity for service requests of less than one month. If the Application is rejected by Big Rivers because it does not meet the conditions for service as set forth herein, or in the case of requests for service arising in connection with losing bidders in a Request For Proposals (RFP), said

deposit shall be returned with interest calculated using one year United States Treasury Bill rates during each month while the deposit is held less any reasonable costs incurred by Big Rivers in connection with the review of the losing bidder's Application. The deposit also will be returned with interest calculated as above, less any reasonable costs incurred by Big Rivers, if Big Rivers is unable to complete new facilities needed to provide the service. If an Application is withdrawn or the Eligible Customer decides not to enter into a Service Agreement for Firm Point-To-Point Transmission Service, the deposit shall be refunded in full, with interest calculated as above, less reasonable costs incurred by Big Rivers to the extent such costs have not already been recovered by Big Rivers from the Eligible Customer. Big Rivers will provide to the Eligible Customer a complete accounting of all costs deducted from the refunded deposit, which the Eligible Customer may contest if there is a dispute concerning the deducted costs. Deposits associated with construction of new facilities are subject to the

provisions of Section 19. If a Service Agreement for Firm Point-To-Point Transmission Service is executed, the deposit, with interest calculated as above, will be returned to the Transmission Customer upon expiration or termination of the Service Agreement for Firm Point-To-Point Transmission Service. Applicable interest shall be calculated from the day the deposit check is credited to Big Rivers' account.

**17.4 Notice of Deficient Application:** If an Application fails to meet the requirements of the Tariff, Big Rivers shall notify the entity requesting service within fifteen (15) days of receipt of the reasons for such failure. Big Rivers will attempt to remedy minor deficiencies in the Application through informal communications with the Eligible Customer. If such efforts are unsuccessful, Big Rivers shall return the Application, along with any deposit, with interest. Upon receipt of a new or revised Application that fully complies with the requirements of Part II of the Tariff, the Eligible Customer shall be assigned a new

priority consistent with the date of the new or revised Application.

**17.5 Response to a Completed Application:** Following receipt of a Completed Application for Firm Point-To-Point Transmission Service, Big Rivers shall make a determination of available transmission capability as required in Section 15.2. Big Rivers shall notify the Eligible Customer as soon as practicable, but not later than thirty (30) days after the date of receipt of a Completed Application either (i) if it will be able to provide service without performing a System Impact Study or (ii) if such a study is needed to evaluate the impact of the Application pursuant to Section 19.1. Responses by Big Rivers must be made as soon as practicable to all completed applications (including applications by its own merchant function) and the timing of such responses must be made on a non-discriminatory basis.

**17.6 Execution of Service Agreement:** Whenever Big Rivers determines that a System Impact Study is not required

and that the service can be provided, it shall notify the Eligible Customer as soon as practicable but no later than thirty (30) days after receipt of the Completed Application. Where a System Impact Study is required, the provisions of Section 19 will govern the execution of a Service Agreement. Failure of an Eligible Customer to execute and return the Service Agreement or request the filing of an unexecuted service agreement pursuant to Section 15.3, within fifteen (15) days after it is tendered by Big Rivers will be deemed a withdrawal and termination of the Application, and any deposit submitted shall be refunded with interest. Nothing herein limits the right of an Eligible Customer to file another Application after such withdrawal and termination.

**17.7 Extensions for Commencement of Service:** The Transmission Customer can obtain up to five (5) one-year extensions for the commencement of service. The Transmission Customer may postpone service by paying a non-refundable annual reservation fee equal to one-month's charge for Firm Transmission Service for each



year or fraction thereof. If during any extension for the commencement of service an Eligible Customer submits a Completed Application for Firm Transmission Service, and such request can be satisfied only by releasing all or part of the Transmission Customer's Reserved Capacity, the original Reserved Capacity will be released unless the following condition is satisfied. Within thirty (30) days, the original Transmission Customer agrees to pay the Firm Point-To-Point transmission rate for its Reserved Capacity concurrent with the new Service Commencement Date. In the event the Transmission Customer elects to release the Reserved Capacity, the reservation fees or portions thereof previously paid will be forfeited.

**18 Procedures for Arranging Non-Firm Point-To-Point  
Transmission Service**

**18.1 Application:** Eligible Customers seeking Non-Firm Point-To-Point Transmission Service must submit a Completed Application to Big Rivers. Applications should be submitted by entering the information listed below on Big Rivers' OASIS. Prior to implementation of

Big Rivers' OASIS, a Completed Application may be submitted by (i) transmitting the required information to Big Rivers by telefax, or (ii) providing the information by telephone over Big Rivers' time recorded telephone line. Each of these methods will provide a time-stamped record for establishing the service priority of the Application.

**18.2 Completed Application:** A Completed Application shall provide all of the information included in the Federal Energy Regulatory Commission's regulations at 18 CFR § 2.20, including but not limited to the following:

- (i) The identity, address, telephone number and facsimile number of the entity requesting service;
- (ii) A statement that the entity requesting service is, or will be upon commencement of service, an Eligible Customer under the Tariff;
- (iii) The Point(s) of Receipt and the Point(s) of Delivery;
- (iv) The maximum amount of capacity requested at each Point of Receipt and Point of Delivery; and
- (v) The proposed dates and hours for initiating and terminating transmission service hereunder.

In addition to the information specified above, when required to properly evaluate system conditions, Big Rivers also may ask the Transmission Customer to provide the following:

- (vi) The electrical location of the initial source of the power to be transmitted pursuant to the Transmission Customer's request for service; and
- (vii) The electrical location of the ultimate load.

Big Rivers will treat this information in (vi) and (vii) as confidential at the request of the Transmission Customer except to the extent that disclosure of this information is required by this Tariff, by regulatory or judicial order, for reliability purposes pursuant to Good Utility Practice, or pursuant to RTG transmission information sharing agreements. Big Rivers shall treat this information consistent with the standards of conduct contained in Part 37 of the Commission's regulations.

**18.3 Reservation of Non-Firm Point-To-Point Transmission**

**Service:** Requests to reserve monthly service shall be submitted no earlier than sixty (60) days before

service is to commence; requests to reserve weekly service shall be submitted no earlier than fourteen (14) days before service is to commence, requests to reserve daily service shall be submitted no earlier than two (2) days before service is to commence, and requests to reserve hourly service shall be submitted no earlier than noon the day before service is to commence. Requests for Short-Term Non-Firm Service received later than 2:00 p.m. prior to the day service is scheduled to commence will be accommodated if practicable.

**18.4 Determination of Available Transmission Capability:**

Following receipt of a tendered Application Big Rivers will make a determination on a non-discriminatory basis of available transmission capability pursuant to Section 15.2. Such determination shall be made as soon as reasonably practicable after receipt, but not later than the following time periods for the following terms of service (i) thirty (30) minutes for hourly service,  
(ii) thirty (30) minutes for daily service, (iii) four

(4) hours for weekly service, and (iv) two (2) days for  
monthly service.

19 Additional Study Procedures For Firm Point-To-Point  
Transmission Service Requests

19.1 Notice of Need for System Impact Study: After receiving a request for service, Big Rivers shall determine on a non-discriminatory basis whether a System Impact Study is needed. A description of Big Rivers' methodology for completing a System Impact Study is provided in Attachment D. If Big Rivers determines that a System Impact Study is necessary to accommodate the requested service, it shall so inform the Eligible Customer, as soon as practicable. In such cases, Big Rivers shall within thirty (30) days of receipt of a Completed Application, tender a System Impact Study Agreement pursuant to which the Eligible Customer shall agree to reimburse Big Rivers for performing the required System Impact Study. For a service request to remain a Completed Application, the Eligible Customer shall execute the System Impact Study Agreement and return it to Big Rivers within fifteen

(15) days. If the Eligible Customer elects not to execute the System Impact Study Agreement, its application shall be deemed withdrawn and its deposit, pursuant to Section 17.3, shall be returned with interest.

**19.2 System Impact Study Agreement and Cost Reimbursement:**

(i) The System Impact Study Agreement will clearly specify Big Rivers' estimate of the actual cost, and time for completion of the System Impact Study. The charge shall not exceed the actual cost of the study. In performing the System Impact Study, Big Rivers shall rely, to the extent reasonably practicable, on existing transmission planning studies. The Eligible Customer will not be assessed a charge for such existing studies; however, the Eligible Customer will be responsible for charges associated with any modifications to existing planning studies that are reasonably necessary to evaluate the impact of the Eligible Customer's request for service on the Transmission System.

- (ii) If in response to multiple Eligible Customers requesting service in relation to the same competitive solicitation, a single System Impact Study is sufficient for Big Rivers to accommodate the requests for service, the costs of that study shall be pro-rated among the Eligible Customers.
- (iii) For System Impact Studies that Big Rivers conducts on its own behalf, Big Rivers shall record the cost of the System Impact Studies pursuant to Section 19.

**19.3 System Impact Study Procedures:** Upon receipt of an executed System Impact Study Agreement, Big Rivers will use due diligence to complete the required System Impact Study within a sixty (60) day period. The System Impact Study shall identify any system constraints and redispatch options, additional Direct Assignment Facilities or Network Upgrades required to provide the requested service. In the event that Big Rivers is unable to complete the required System Impact Study within such time period, it shall so notify the Eligible Customer and provide an estimated completion

date along with an explanation of the reasons why additional time is required to complete the required studies. A copy of the completed System Impact Study and related work papers shall be made available to the Eligible Customer. Big Rivers will use the same due diligence in completing the System Impact Study for an Eligible Customer as it uses when completing studies for itself. Big Rivers shall notify the Eligible Customer immediately upon completion of the System Impact Study if the Transmission System will be adequate to accommodate all or part of a request for service or that no costs are likely to be incurred for new transmission facilities or upgrades. In order for a request to remain a Completed Application, within fifteen (15) days of completion of the System Impact Study the Eligible Customer must execute a Service Agreement or request the filing of an unexecuted Service Agreement pursuant to Section 15.3, or the Application shall be deemed terminated and withdrawn.

**19.4 Facilities Study Procedures:** If a System Impact Study indicates that additions or upgrades to the



Transmission System are needed to supply the Eligible Customer's service request, Big Rivers, within thirty (30) days of the completion of the System Impact Study, shall tender to the Eligible Customer a Facilities Study Agreement pursuant to which the Eligible Customer shall agree to reimburse Big Rivers for performing the required Facilities Study. For a service request to remain a Completed Application, the Eligible Customer shall execute the Facilities Study Agreement and return it to Big Rivers within fifteen (15) days. If the Eligible Customer elects not to execute the Facilities Study Agreement, its application shall be deemed withdrawn and its deposit, pursuant to Section 17.3, shall be returned with interest. Upon receipt of an executed Facilities Study Agreement, Big Rivers will use due diligence to complete the required Facilities Study within a sixty (60) day period. If Big Rivers is unable to complete the Facilities Study in the allotted time period, Big Rivers shall notify the Transmission Customer and provide an estimate of the time needed to reach a final determination along with an explanation

of the reasons that additional time is required to complete the study. When completed, the Facilities Study will include a good faith estimate of (i) the cost of Direct Assignment Facilities to be charged to the Transmission Customer, (ii) the Transmission Customer's appropriate share of the cost of any required Network Upgrades as determined pursuant to the provisions of Part II of the Tariff, and (iii) the time required to complete such construction and initiate the requested service. The Transmission Customer shall provide Big Rivers with a letter of credit or other reasonable form of security acceptable to Big Rivers equivalent to the costs of new facilities or upgrades consistent with commercial practices as established by the Uniform Commercial Code. The Transmission Customer shall have thirty (30) days to execute a Service Agreement or request the filing of an unexecuted Service Agreement and provide the required letter of credit or other form of security or the request will no longer be a Completed Application and shall be deemed terminated and withdrawn.

**19.5 Facilities Study Modifications:** Any change in design arising from inability to site or construct facilities as proposed will require development of a revised good faith estimate. New good faith estimates also will be required in the event of new statutory or regulatory requirements that are effective before the completion of construction or other circumstances beyond the control of Big Rivers that significantly affect the final cost of new facilities or upgrades to be charged to Big Rivers pursuant to the provisions of Part II of the Tariff.

**19.6 Due Diligence in Completing New Facilities:** Big Rivers shall use due diligence to add necessary facilities or upgrade its Transmission System within a reasonable time. Big Rivers will not upgrade its existing or planned Transmission System in order to provide the requested Firm Point-To-Point Transmission Service if doing so would impair system reliability or otherwise impair or degrade existing firm service.

**19.7 Partial Interim Service:** If Big Rivers determines that it will not have adequate transmission capability to satisfy the full amount of a Completed Application for Firm Point-To-Point Transmission Service, Big Rivers shall offer and provide the portion of the requested Firm Point-To-Point Transmission Service that can be accommodated without addition of any facilities and through redispatch. However, Big Rivers shall not be obligated to provide the incremental amount of requested Firm Point-To-Point Transmission Service that requires the addition of facilities or upgrades to the Transmission System until such facilities or upgrades have been placed in service.

**19.8 Expedited Procedures for New Facilities:** In lieu of the procedures set forth above, the Eligible Customer shall have the option to expedite the process by requesting Big Rivers to tender at one time, together with the results of required studies, an "Expedited Service Agreement" pursuant to which the Eligible Customer would agree to compensate Big Rivers for all costs incurred pursuant to the terms of the Tariff. In

order to exercise this option, the Eligible Customer shall request in writing an expedited Service Agreement covering all of the above-specified items within thirty (30) days of receiving the results of the System Impact Study identifying needed facility additions or upgrades or costs incurred in providing the requested service. While Big Rivers agrees to provide the Eligible Customer with its best estimate of the new facility costs and other charges that may be incurred, such estimate shall not be binding and the Eligible Customer must agree in writing to compensate Big Rivers for all costs incurred pursuant to the provisions of the Tariff. The Eligible Customer shall execute and return such an Expedited Service Agreement within fifteen (15) days of its receipt or the Eligible Customer's request for service will cease to be a Completed Application and will be deemed terminated and withdrawn.

20 Procedures if Big Rivers is Unable to Complete New  
Transmission Facilities for Firm Point-To-Point Transmission  
Service

**20.1 Delays in Construction of New Facilities:** If any event occurs that will materially affect the time for completion of new facilities, or the ability to complete them, Big Rivers shall promptly notify the Transmission Customer. In such circumstances, Big Rivers shall within thirty (30) days of notifying the Transmission Customer of such delays, convene a technical meeting with the Transmission Customer to evaluate the alternatives available to the Transmission Customer. Big Rivers also shall make available to the Transmission Customer studies and work papers related to the delay, including all information that is in the possession of Big Rivers that is reasonably needed by the Transmission Customer to evaluate any alternatives.

**20.2 Alternatives to the Original Facility Additions:** When the review process of Section 20.1 determines that one or more alternatives exist to the originally planned construction project, Big Rivers shall present such alternatives for consideration by the Transmission Customer. If, upon review of any alternatives, the Transmission Customer desires to maintain its Completed

Application subject to construction of the alternative facilities, it may request Big Rivers to submit a revised Service Agreement for Firm Point-To-Point Transmission Service. If the alternative approach solely involves Non-Firm Point-To-Point Transmission Service, Big Rivers shall promptly tender a Service Agreement for Non-Firm Point-To-Point Transmission Service providing for the service. In the event Big Rivers concludes that no reasonable alternative exists and the Transmission Customer disagrees, the Transmission Customer may seek relief under the dispute resolution procedures pursuant to Section 12.

**20.3 Refund Obligation for Unfinished Facility Additions:**

If Big Rivers and the Transmission Customer mutually agree that no other reasonable alternatives exist and the requested service cannot be provided out of existing capability under the conditions of Part II of the Tariff, Big Rivers' obligation to provide the requested Firm Point-To-Point Transmission Service shall terminate and any deposit made by the Transmission Customer shall be returned with interest

calculated for each month using the one-year Treasury Bill rates measured as of the first day of the month for each such month during which the deposit was held. However, the Transmission Customer shall be responsible for all prudently incurred costs by Big Rivers through the time construction was suspended.

**21 Provisions Relating to Transmission Construction and Services on the Systems of Other Utilities**

**21.1 Responsibility for Third-Party System Additions:** Big Rivers shall not be responsible for making arrangements for any necessary engineering, permitting, and construction of transmission or distribution facilities on the system(s) of any other entity or for obtaining any regulatory approval for such facilities. Big Rivers will undertake reasonable efforts to assist the Transmission Customer in obtaining such arrangements, including without limitation, providing any information or data required by such other electric system pursuant to Good Utility Practice.

**21.2 Coordination of Third-Party System Additions:** In circumstances where the need for transmission



facilities or upgrades is identified pursuant to the provisions of Part II of the Tariff, and if such upgrades further require the addition of transmission facilities on other systems, Big Rivers shall have the right to coordinate construction on its own system with the construction required by others. Big Rivers, after consultation with the Transmission Customer and representatives of such other systems, may defer construction of its new transmission facilities, if the new transmission facilities on another system cannot be completed in a timely manner. Big Rivers shall notify the Transmission Customer in writing of the basis for any decision to defer construction and the specific problems which must be resolved before it will initiate or resume construction of new facilities. Within sixty (60) days of receiving written notification by Big Rivers of its intent to defer construction pursuant to this section, the Transmission Customer may challenge the decision in accordance with the dispute resolution procedures pursuant to Section 12.

22.1 Modifications On a Non-Firm Basis: The Transmission Customer taking Firm Point-To-Point Transmission Service may request Big Rivers to provide transmission service on a non-firm basis over Secondary Receipt and Delivery Points in amounts not to exceed its firm capacity reservation, without incurring an additional Non-Firm Point-To-Point Transmission Service charge or executing a new Service Agreement, subject to the following conditions.

- (a) Service provided over Secondary Receipt and Delivery Points will be non-firm only, on an as-available basis and will not displace any firm or non-firm service reserved or scheduled by third-parties under the Tariff or by Big Rivers on behalf of its Native Load Customers.
- (b) The sum of all Firm and non-firm Point-To-Point Transmission Service provided to the Transmission Customer at any time pursuant to this section shall not exceed the Reserved Capacity in the relevant Service Agreement under which such services are provided.

- (c) The Transmission Customer shall retain its right to schedule Firm Point-To-Point Transmission Service at the Receipt and Delivery Points specified in the relevant Service Agreement in the amount of its original capacity reservation.
- (d) Service over Secondary Receipt and Delivery Points on a non-firm basis shall not require the filing of an Application for Non-Firm Point-To-Point Transmission Service under the Tariff. However, all other requirements of Part II of the Tariff (except as to transmission rates) shall apply to transmission service on a non-firm basis over Secondary Receipt and Delivery Points.

**22.2 Modification On a Firm Basis:** Any request by a Transmission Customer to modify Receipt and Delivery Points on a firm basis shall be treated as a new request for service in accordance with Section 17 hereof, except that such Transmission Customer shall not be obligated to pay any additional deposit if the capacity reservation does not exceed the amount reserved in the existing Service Agreement. While such

new request is pending, the Transmission Customer shall retain its priority for service at the existing firm Receipt and Delivery Points specified in its Service Agreement.

**23 Sale or Assignment of Transmission Service**

**23.1 Procedures for Assignment or Transfer of Service: A**

Transmission Customer taking service under this tariff may sell, assign, or transfer all or a portion of its rights under its Service Agreement, but only to another Eligible Customer (the Assignee). The Transmission Customer that sells, assigns or transfers its rights under its Service Agreement is hereafter referred to as the Reseller. Compensation to the Reseller shall not exceed the higher of (i) the original rate paid by the Reseller, (ii) Big Rivers' maximum rate at the time of the assignment, or (iii) the Reseller's opportunity cost capped at Big Rivers' cost of expansion. If the Assignee does not request any change in the Point(s) of Receipt or the Point(s) of Delivery, or a change in any other term or condition set forth in the original

Service Agreement, the Assignee will receive the same services as did the Reseller and the priority of service for the Assignee will be the same as that of the Reseller. A Reseller should notify Big Rivers as soon as possible after any assignment or transfer of service occurs but in any event, notification must be provided prior to any provision of service to the Assignee. The Assignee will be subject to all terms and conditions of this Tariff. If the Assignee requests a change in service, the reservation priority of service will be determined by Big Rivers pursuant to Section 13.2.

**23.2 Limitations on Assignment or Transfer of Service:** If the Assignee requests a change in the Point(s) of Receipt or Point(s) of Delivery, or a change in any other specifications set forth in the original Service Agreement, Big Rivers will consent to such change subject to the provisions of the Tariff, provided that the change will not impair the operation and reliability of Big Rivers' transmission system or its member distribution cooperatives' distribution systems.

The Assignee shall compensate Big Rivers for performing any System Impact Study needed to evaluate the capability of the Transmission System to accommodate the proposed change and any additional costs resulting from such change. The Reseller shall remain liable for the performance of all obligations under the Service Agreement, except as specifically agreed to by the Parties through an amendment to the Service Agreement.

**23.3 Information on Assignment or Transfer of Service:** In accordance with Section 4, Resellers may use Big Rivers' OASIS to post transmission capacity available for resale.

**24 Metering and Power Factor Correction at Receipt and Delivery Points(s)**

**24.1 Transmission Customer Obligations:** Unless otherwise agreed, the Transmission Customer shall be responsible for installing and maintaining compatible metering and communications equipment to accurately account for the capacity and energy being transmitted under Part II of the Tariff and to communicate the information to Big Rivers. Such equipment shall remain the property of

the Transmission Customer, unless otherwise specified in the applicable Service Agreement.

**24.2 Transmission Provider Access to Metering Data:** Big Rivers shall have access to all metering data, which may reasonably be required to facilitate measurements and billing under the Service Agreement.

**24.3 Power Factor:** Unless otherwise agreed, the Transmission Customer is required to maintain the power factor of the load at Big Rivers' delivery points at a level greater than or equal to 0.95, leading or lagging.

**25 Compensation for Transmission Service**

Rates for Firm and Non-Firm Point-To-Point Transmission Service are provided in the Schedules appended to the Tariff: Schedule 7: Firm Point-To-Point Transmission Service (Schedule FTS); Schedule 8: Short-Term Non-Firm Point-To-Point Transmission Service (Schedule STNF); and Schedule 9: Hourly Non-Firm Transmission Service (Schedule HNF). Big Rivers shall use Part II of the Tariff to make its Third-Party Sales under new contracts commencing on the effective date of this Tariff. Big

Rivers shall account for such use at the applicable Tariff rates, pursuant to Section 8.

**26 Stranded Cost Recovery**

Big Rivers reserves the right to seek to recover stranded costs from the Transmission Customer pursuant to this Tariff in accordance with the terms, conditions and procedures set forth in FERC Order No. 888, to the extent applicable.

**27 Compensation for New Facilities and Redispatch Costs**

Whenever a System Impact Study performed by Big Rivers in connection with the provision of Firm Point-To-Point Transmission Service identifies the need for new facilities, the Transmission Customer shall be responsible for such costs to the extent consistent with Federal Energy Regulatory Commission policy. Whenever a System Impact Study performed by Big Rivers identifies capacity constraints that may be relieved more economically by redispatching generating resources located within Big Rivers' Control Area rather than by building new facilities or upgrading existing facilities to eliminate such constraints, the Transmission Customer shall be responsible for the redispatch costs to the extent consistent with Federal Energy Regulatory Commission policy.



**III. NETWORK INTEGRATION TRANSMISSION SERVICE**

**Preamble**

Big Rivers will provide Network Integration Transmission Service pursuant to the applicable terms and conditions contained in the Tariff and Service Agreement. Network Integration Transmission Service allows the Network Customer to integrate, economically dispatch and regulate its current and planned Network Resources to serve its Network Load in a manner comparable to that in which Big Rivers utilizes its Transmission System to serve its Native Load Customers. Network Integration Transmission Service also may be used by the Network Customer to deliver economy energy purchases to its Network Load from non-designated resources on an as-available basis without additional charge. Transmission service for sales to non-designated loads will be provided pursuant to the applicable terms and conditions of Part II of the Tariff.

**28 Nature of Network Integration Transmission Service**

**28.1 Scope of Service: Network Integration Transmission**

Service is a transmission service that allows Network Customers to efficiently and economically utilize their Network Resources (as well as other non-designated

generation resources) to serve their Network Load located in Big Rivers' Control Area and any additional load that may be designated pursuant to Section 31.3 of the Tariff. The Network Customer taking Network Integration Transmission Service must obtain or provide Ancillary Services pursuant to Section 3.

**28.2 Big Rivers' Responsibilities:** Big Rivers will plan, construct, operate and maintain its Transmission System in accordance with Good Utility Practice in order to provide the Network Customer with Network Integration Transmission Service over Big Rivers' Transmission System. Big Rivers, on behalf of its Native Load Customers, shall be required to designate resources and loads in the same manner as any Network Customer under Part III of this Tariff. This information must be consistent with the information used by Big Rivers to calculate available transmission capability. Big Rivers shall include the Network Customer's Network Load in its Transmission System planning and shall, consistent with Good Utility Practice, endeavor to construct and place into service sufficient

transmission capacity to deliver the Network Customer's Network Resources to serve its Network Load on a basis comparable to Big Rivers' delivery of its own generating and purchased resources to its Native Load Customers.

**28.3 Network Integration Transmission Service:** Big Rivers will provide firm transmission service over its Transmission System to the Network Customer for the delivery of capacity and energy from its designated Network Resources to service its Network Loads on a basis that is comparable to Big Rivers' use of the Transmission System to reliably serve its Native Load Customers.

**28.4 Secondary Service:** The Network Customer may use Big Rivers' Transmission System to deliver energy to its Network Loads from resources that have not been designated as Network Resources. Such energy shall be transmitted, on an as-available basis, at no additional charge. Deliveries from resources other than Network Resources will have a higher priority than any Non-Firm

Point-To-Point Transmission Service under Part II of the Tariff.

**28.5 Real Power Losses:** Real Power Losses are associated with all transmission service. Big Rivers is not obligated to provide Real Power Losses to Network Customers. The Network Customer is responsible for replacing losses associated with all transmission service rendered by Big Rivers at Real Power Loss factors calculated by Big Rivers. Big Rivers shall recalculate average system Real Power Loss factors on an annual basis using the methodology specified in Schedule 10 of the Tariff.

**28.6 Restrictions on Use of Service:** The Network Customer shall not use Network Integration Transmission Service for (i) sales of capacity and energy to non-designated loads, or (ii) direct or indirect provision of transmission service by the Network Customer to third parties. All Network Customers taking Network Integration Transmission Service shall use Point-To-Point Transmission Service under Part II of the Tariff

for any Third-Party Sale which requires use of Big Rivers' Transmission System.

**29 Initiating Service**

**29.1 Condition Precedent for Receiving Service:** Subject to the terms and conditions of Part III of the Tariff, Big Rivers will provide Network Integration Transmission Service to any Eligible Customer, provided that (i) the Eligible Customer completes an Application for service as provided under Part III of the Tariff, (ii) the Eligible Customer and Big Rivers complete the technical arrangements set forth in Sections 29.3 and 29.4, (iii) the Eligible Customer executes a Service Agreement pursuant to Attachment F for service under Part III of the Tariff or requests in writing that Big Rivers implement a proposed unexecuted Service Agreement, and (iv) the Eligible Customer executes a Network Operating Agreement with Big Rivers pursuant to Attachment G.

**29.2 Application Procedures:** An Eligible Customer requesting service under Part III of the Tariff must submit an Application, with a deposit approximating the charge for one month of service, to Big Rivers as far

as possible in advance of the month in which service is to commence. Unless subject to the procedures in Section 2, Completed Applications for Network Integration Transmission Service will be assigned a priority according to the date and time the Application is received, with the earliest Application receiving the highest priority. Applications should be submitted by entering the information listed below on Big Rivers' OASIS. Prior to implementation of Big Rivers' OASIS, a Completed Application may be submitted by (i) transmitting the required information to Big Rivers by telefax, or (ii) providing the information by telephone over Big Rivers' time recorded telephone line. Each of these methods will provide a time-stamped record for establishing the service priority of the Application. A Completed Application shall provide all of the information included in the Federal Energy Regulatory Commission's regulations at 18 CFR § 2.20 including but not limited to the following:

- (i) The identity, address, telephone number and facsimile number of the party requesting service;

- (ii) A statement that the party requesting service is, or will be upon commencement of service, an Eligible Customer under the Tariff;
- (iii) A description of the Network Load at each delivery point. This description should separately identify and provide the Eligible Customer's best estimate of the total loads to be served at each transmission voltage level, and the loads to be served from each of Big Rivers' substations at the same transmission voltage level. The description should include a ten (10) year forecast of summer and winter load and resource requirements beginning with the first year after the service is scheduled to commence;
- (iv) The amount and location of any interruptible loads included in the Network Load. This shall include the summer and winter capacity requirements for each interruptible load (had such load not been interruptible), that portion of the load subject to interruption, the conditions under which an interruption can be implemented and any limitations on the amount and frequency of interruptions. An Eligible Customer should identify the amount of interruptible customer load (if any) included in the 10 year load forecast provided in response to (iii) above;
- (v) A description of Network Resources (current and 10-year projection), which shall include, for each Network Resource:
  - Unit size and amount of capacity from that unit to be designated as Network Resource
  - VAR capability (both leading and lagging) of all generators
  - Operating restrictions
  - Any periods of restricted operations throughout the year
  - Maintenance schedules
  - Minimum loading level of unit

- Normal operating level of unit
- Any must-run unit designations required for system reliability or contract reasons
- Approximate variable generating cost (\$/MWH) for redispatch computations
- Arrangements governing sale and delivery of power to third parties from generating facilities located in Big Rivers' Control Area, where only a portion of unit output is designated as a Network Resource
- Description of purchased power designated as a Network Resource including source of supply, Control Area location, transmission arrangements and delivery point(s) to Big Rivers' Transmission System;

(vi) Description of Eligible Customer's transmission system:

- Load flow and stability data, such as real and reactive parts of the load, lines, transformers, reactive devices and load type, including normal and emergency ratings of all transmission equipment in a load flow format compatible with that used by Big Rivers
- Operating restrictions needed for reliability
- Operating guides employed by system operators
- Contractual restrictions or committed uses of the Eligible Customer's transmission system, other than the Eligible Customer's Network Loads and Resources
- Location of Network Resources described in subsection (v) above
- 10 year projection of system expansions or upgrades
- Transmission System maps that include any proposed expansions or upgrades
- Thermal ratings of Eligible Customer's Control Area ties with other Control Areas; and



(vii) Service Commencement Date and the term of the requested Network Integration Transmission Service. The minimum term for Network Integration Transmission Service is one year.

Unless the Parties agree to a different time frame, Big Rivers must acknowledge the request within ten (10) days of receipt. The acknowledgment must include a date by which a response, including a Service Agreement, will be sent to the Eligible Customer. If an Application fails to meet the requirements of this section, Big Rivers shall notify the Eligible Customer requesting service within fifteen (15) days of receipt and specify the reasons for such failure. Wherever possible, Big Rivers will attempt to remedy deficiencies in the Application through informal communications with the Eligible Customer. If such efforts are unsuccessful, Big Rivers shall return the Application without prejudice to the Eligible Customer filing a new or revised Application that fully complies with the requirements of this section. The Eligible Customer will be assigned a new priority consistent with the date of the new or revised Application. Big

Rivers shall treat this information consistent with the standards of conduct contained in Part 37 of the Commission's regulations.

**29.3 Technical Arrangements to be Completed Prior to Commencement of Service: Network Integration**

Transmission Service shall not commence until Big Rivers and the Network Customer, or a third party, have completed installation of all equipment specified under the Network Operating Agreement consistent with Good Utility Practice and any additional requirements reasonably and consistently imposed to ensure the reliable operation of the Transmission System. Big Rivers shall exercise reasonable efforts, in coordination with the Network Customer, to complete such arrangements as soon as practicable taking into consideration the Service Commencement Date.

**29.4 Network Customer Facilities: The provision of Network Integration Transmission Service shall be conditioned upon the Network Customer's constructing, maintaining and operating the facilities on its side of each delivery point or interconnection necessary to reliably**

deliver capacity and energy from Big Rivers' Transmission System to the Network Customer. The Network Customer shall be solely responsible for constructing or installing all facilities on the Network Customer's side of each such delivery point or interconnection. -

**29.5 Filing of Service Agreement:** Big Rivers, if required, will file Network Service Agreements with the applicable regulatory commissions in compliance with applicable regulations.

**30 Network Resources**

**30.1 Designation of Network Resources:** Network Resources shall include all generation owned, purchased, or leased by the Network Customer designated to serve Network Load under the Tariff. Network Resources may not include resources, or any portion thereof, that are committed for sale to non-designated third party load or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis. Any owned or purchased resources that were serving the Network Customer's loads under firm agreements entered

into on or before the Service Commencement Date shall initially be designated as Network Resources until the Network Customer terminates the designation of such resources.

**30.2 Designation of New Network Resources:** The Network Customer may designate a new Network Resource by providing Big Rivers with as much advance notice as practicable. A designation of a new Network Resource must be made by a request for modification of service pursuant to an Application under Section 28.

**30.3 Termination of Network Resources:** The Network Customer may terminate the designation of all or part of a generating resource as a Network Resource at any time but should provide notification to Big Rivers as soon as reasonably practicable.

**30.4 Operation of Network Resources:** The Network Customer shall not operate its designated Network Resources located in the Network Customer's or Big Rivers' Control Area such that the output of those facilities exceeds its designated Network Load, plus non-firm

sales delivered pursuant to Part II of the Tariff, plus losses. This limitation shall not apply to changes in the operation of a Transmission Customer's Network Resources at the request of Big Rivers to respond to an emergency or other unforeseen condition which may impair or degrade the reliability of the Transmission System.

**30.5 Network Customer Redispatch Obligation:** As a condition to receiving Network Integration Transmission Service, the Network Customer agrees to redispatch its Network Resources as requested by Big Rivers pursuant to Section 33.2. To the extent practical, the redispatch of resources pursuant to this section shall be on a least cost, non-discriminatory basis between all Network Customers, and Big Rivers.

**30.6 Transmission Arrangements for Network Resources Not Physically Interconnected With Big Rivers:** The Network Customer shall be responsible for any arrangements necessary to deliver capacity and energy from a Network Resource not physically interconnected with Big Rivers' Transmission System. Big Rivers will undertake

reasonable efforts to assist the Network Customer in obtaining such arrangements, including without limitation, providing any information or data required by such other entity pursuant to Good Utility Practice.

**30.7 Limitation on Designation of Network Resources:** The Network Customer must demonstrate that it owns or has committed to purchase generation pursuant to an executed contract in order to designate a generating resource as a Network Resource. Alternatively, the Network Customer may establish that execution of a contract is contingent upon the availability of transmission service under Part III of the Tariff.

**30.8 Use of Interface Capacity by the Network Customer:**  
There is no limitation upon a Network Customer's use of Big Rivers' Transmission System at any particular interface to integrate the Network Customer's Network Resources (or substitute economy purchases) with its Network Loads. However, a Network Customer's use of Big Rivers' total interface capacity with other

transmission systems may not exceed the Network Customer's Load.

30.9 Network Customer Owned Transmission Facilities: The Network Customer that owns existing transmission facilities that are integrated with Big Rivers' Transmission System may be eligible to receive consideration either through a billing credit or some other mechanism. In order to receive such consideration the Network Customer must demonstrate that its transmission facilities are integrated into the plans or operations of Big Rivers to serve its power and transmission customers. For facilities constructed by the Network Customer subsequent to the Service Commencement Date under Part III of the Tariff, the Network Customer shall receive credit where such facilities are jointly planned and installed in coordination with Big Rivers. Calculation of the credit shall be addressed in either the Network Customer's Service Agreement or any other agreement between the Parties.

31.1 Network Load: The Network Customer must designate the individual Network Loads on whose behalf Big Rivers will provide Network Integration Transmission Service. The Network Loads shall be specified in the Service Agreement.

31.2 New Network Loads Connected With Big Rivers: The Network Customer shall provide Big Rivers with as much advance notice as reasonably practicable of the designation of new Network Load that will be added to its Transmission System. A designation of new Network Load must be made through a modification of service pursuant to a new Application. Big Rivers will use due diligence to install any transmission facilities required to interconnect a new Network Load designated by the Network Customer. The costs of new facilities required to interconnect a new Network Load shall be determined in accordance with the procedures provided in Section 32.4 and shall be charged to the Network Customer in accordance with Commission policies.



**31.3 Network Load Not Physically Interconnected with Big**

**Rivers:** This section applies to both initial designation pursuant to Section 31.1 and the subsequent addition of new Network Load not physically interconnected with Big Rivers. To the extent that the Network Customer desires to obtain transmission service for a load outside Big Rivers' Transmission System, the Network Customer shall have the option of (1) electing to include the entire load as Network Load for all purposes under Part III of the Tariff and designating Network Resources in connection with such additional Network Load, or (2) excluding that entire load from its Network Load and purchasing Point-To-Point Transmission Service under Part II of the Tariff. To the extent that the Network Customer gives notice of its intent to add a new Network Load as part of its Network Load pursuant to this section the request must be made through a modification of service pursuant to a new Application.

**31.4 New Interconnection Points:** To the extent the Network Customer desires to add a new Delivery Point or

interconnection point between Big Rivers' Transmission System and a Network Load, the Network Customer shall provide Big Rivers with as much advance notice as reasonably practicable.

**31.5 Changes in Service Requests:** Under no circumstances shall the Network Customer's decision to cancel or delay a requested change in Network Integration Transmission Service (e.g. the addition of a new Network Resource or designation of a new Network Load) in any way relieve the Network Customer of its obligation to pay the costs of transmission facilities constructed by Big Rivers and charged to the Network Customer as reflected in the Service Agreement. However, Big Rivers must treat any requested change in Network Integration Transmission Service in a non-discriminatory manner.

**31.6 Annual Load and Resource Information Updates:** The Network Customer shall provide Big Rivers with annual updates of Network Load and Network Resource forecasts consistent with those included in its Application for

Network Integration Transmission Service under Part III of the Tariff. The Network Customer also shall provide Big Rivers with timely written notice of material changes in any other information provided in its Application relating to the Network Customer's Network Load, Network Resources, its transmission system or other aspects of its facilities or operations affecting Big Rivers' ability to provide reliable service.

**32 Additional Study Procedures For Network Integration  
Transmission Service Requests**

**32.1 Notice of Need for System Impact Study:** After receiving a request for service, Big Rivers shall determine on a non-discriminatory basis whether a System Impact Study is needed. A description of Big Rivers' methodology for completing a System Impact Study is provided in Attachment D. If Big Rivers determines that a System Impact Study is necessary to accommodate the requested service, it shall so inform the Eligible Customer, as soon as practicable. In such cases, Big Rivers shall within thirty (30) days of receipt of a Completed Application, tender a System

Impact Study Agreement pursuant to which the Eligible Customer shall agree to reimburse Big Rivers for performing the required System Impact Study. For a service request to remain a Completed Application, the Eligible Customer shall execute the System Impact Study Agreement and return it to Big Rivers within fifteen (15) days. If the Eligible Customer elects not to execute the System Impact Study Agreement, its Application shall be deemed withdrawn and its deposit shall be returned with interest.

**32.2 System Impact Study Agreement and Cost**

**Reimbursement:**

- (i) The System Impact Study Agreement will clearly specify Big Rivers' estimate of the actual cost, and time for completion of the System Impact Study. The charge shall not exceed the actual cost of the study. In performing the System Impact Study, Big Rivers shall rely, to the extent reasonably practicable, on existing transmission planning studies. The Eligible Customer will not be assessed a charge for such existing studies;

however, the Eligible Customer will be responsible for charges associated with any modifications to existing planning studies that are reasonably necessary to evaluate the impact of the Eligible Customer's request for service on the Transmission System.

- (ii) If in response to multiple Eligible Customers requesting service in relation to the same competitive solicitation, a single System Impact Study is sufficient for Big Rivers to accommodate the service requests, the costs of that study shall be pro-rated among the Eligible Customers.
- (iii) For System Impact Studies that Big Rivers conducts on its own behalf, Big Rivers shall record the cost of the System Impact Studies pursuant to Section 8.

**32.3 System Impact Study Procedures:** Upon receipt of an executed System Impact Study Agreement, Big Rivers will use due diligence to complete the required System Impact Study within a sixty (60) day period. The System Impact Study shall identify any system

constraints and redispatch options, additional Direct Assignment Facilities or Network Upgrades required to provide the requested service. In the event that Big Rivers is unable to complete the required System Impact Study within such time period, it shall so notify the Eligible Customer and provide an estimated completion date along with an explanation of the reasons why additional time is required to complete the required studies. A copy of the completed System Impact Study and related work papers shall be made available to the Eligible Customer. Big Rivers will use the same due diligence in completing the System Impact Study for an Eligible Customer as it uses when completing studies for itself. Big Rivers shall notify the Eligible Customer immediately upon completion of the System Impact Study if the Transmission System will be adequate to accommodate all or part of a request for service or that no costs are likely to be incurred for new transmission facilities or upgrades. In order for a request to remain a Completed Application, within fifteen (15) days of completion of the System Impact

Study the Eligible Customer must execute a Service Agreement or request the filing of an unexecuted Service Agreement, or the Application shall be deemed terminated and withdrawn.

**32.4 Facilities Study Procedures:** If a System Impact Study indicates that additions or upgrades to the Transmission System are needed to supply the Eligible Customer's service request, Big Rivers, within thirty (30) days of the completion of the System Impact Study, shall tender to the Eligible Customer a Facilities Study Agreement pursuant to which the Eligible Customer shall agree to reimburse Big Rivers for performing the required Facilities Study. For a service request to remain a Completed Application, the Eligible Customer shall execute the Facilities Study Agreement and return it to Big Rivers within fifteen (15) days. If the Eligible Customer elects not to execute the Facilities Study Agreement, its Application shall be deemed withdrawn and its deposit shall be returned with interest calculated for each calendar month or partial calendar month using the one year U.S. Treasury Bill

rates applicable on the first of each such calendar month or partial calendar month during which the deposit was held. Upon receipt of an executed Facilities Study Agreement, Big Rivers will use due diligence to complete the required Facilities Study within a sixty (60) day period. If Big Rivers is unable to complete the Facilities Study in the allotted time period, Big Rivers shall notify the Eligible Customer and provide an estimate of the time needed to reach a final determination along with an explanation of the reasons that additional time is required to complete the study. When completed, the Facilities Study will include a good faith estimate of (i) the cost of Direct Assignment Facilities to be charged to the Eligible Customer, (ii) the Eligible Customer's appropriate share of the cost of any required Network Upgrades, and (iii) the time required to complete such construction and initiate the requested service. The Eligible Customer shall provide Big Rivers with a letter of credit or other reasonable form of security acceptable to Big Rivers equivalent to the costs of new



facilities or upgrades consistent with commercial practices as established by the Uniform Commercial Code. The Eligible Customer shall have thirty (30) days to execute a Service Agreement or request the filing of an unexecuted Service Agreement and provide the required letter of credit or other form of security or the request no longer will be a Completed Application and shall be deemed terminated and withdrawn.

**33 Load Shedding and Curtailments**

**33.1 Procedures:** Prior to the Service Commencement Date, Big Rivers and the Network Customer shall establish Load Shedding and Curtailment procedures pursuant to the Network Operating Agreement with the objective of responding to contingencies on the Transmission System. The Parties will implement such programs during any period when Big Rivers determines that a system contingency exists and such procedures are necessary to alleviate such contingency. Big Rivers will notify all affected Network Customers in a timely manner of any scheduled Curtailment.

**33.2 Transmission Constraints:** During any period when Big Rivers determines that a transmission constraint exists on the Transmission System, and such constraint may impair the reliability of Big Rivers' system, Big Rivers will take whatever actions, consistent with Good Utility Practice, that are reasonably necessary to maintain the reliability of Big Rivers' system. To the extent Big Rivers determines that the reliability of the Transmission System can be maintained by redispatching resources, Big Rivers will initiate procedures pursuant to the Network Operating Agreement to redispatch all Network Resources and Big Rivers' own resources on a least-cost basis without regard to the ownership of such resources. Any redispatch under this section may not unduly discriminate between Big Rivers' use of the Transmission System on behalf of its Native Load Customers and any Network Customer's use of the Transmission System to serve its designated Network Load.

**33.3 Cost Responsibility for Relieving Transmission**

**Constraints:** Whenever Big Rivers implements least-cost

redispatch procedures in response to a transmission constraint, Big Rivers and Network Customers will each bear a proportionate share of the total redispatch cost based on their respective Load Ratio Shares.

**33.4 Curtailments of Scheduled Deliveries:** If a transmission constraint on Big Rivers' Transmission System cannot be relieved through the implementation of least-cost redispatch procedures and Big Rivers determines that it is necessary to Curtail scheduled deliveries, the Parties shall Curtail such schedules in accordance with the Network Operating Agreement.

**33.5 Allocation of Curtailments:** Big Rivers shall, on a non-discriminatory basis, Curtail the transaction(s) that effectively relieve the constraint. However, to the extent practicable and consistent with Good Utility Practice, any Curtailment will be shared by Big Rivers and the Network Customer in proportion to their respective Load Ratio Shares. Big Rivers shall not direct the Network Customer to Curtail schedules to an

extent greater than Big Rivers would Curtail Big Rivers' schedules under similar circumstances.

**33.6 Load Shedding:** To the extent that a system contingency exists on Big Rivers' Transmission System and Big Rivers determines that it is necessary for Big Rivers and the Network Customer to shed load, the Parties shall shed load in accordance with previously established procedures under the Network Operating Agreement.

**33.7 System Reliability:** Notwithstanding any other provisions of this Tariff, Big Rivers reserves the right, consistent with Good Utility Practice and on a not unduly discriminatory basis, to Curtail Network Integration Transmission Service without liability on Big Rivers' part for the purpose of making necessary adjustments to, changes in, or repairs on its lines, substations and facilities, and in cases where the continuance of Network Integration Transmission Service would endanger persons or property. In the event of any adverse condition(s) or disturbance(s) on Big

Rivers' Transmission System or on any other system(s) directly or indirectly interconnected with Big Rivers' Transmission System, Big Rivers, consistent with Good Utility Practice, also may Curtail Network Integration Transmission Service in order to (i) limit the extent or damage of the adverse condition(s) or disturbance(s), (ii) prevent damage to generating or transmission facilities, or (iii) expedite restoration of service. Big Rivers will give the Network Customer as much advance notice as is practicable in the event of such Curtailment. Any Curtailment of Network Integration Transmission Service will be not unduly discriminatory relative to Big Rivers' use of the Transmission System on behalf of its Native Load Customers. Big Rivers shall specify in the Network Operating Agreement the rate treatment and all related terms and conditions applicable in the event that the Network Customer fails to respond to established Load Shedding and Curtailment procedures.

The Network Customer shall pay Big Rivers for any Direct Assignment Facilities, Ancillary Services, and applicable study costs, along with the following:

**34.1 Monthly Demand Charge:** The Network Customer shall pay a monthly Demand Charge, which shall be determined by multiplying its Load Ratio Share times one twelfth (1/12) of Big Rivers' Annual Transmission Revenue Requirement specified in Schedule H.

**34.2 Determination of Network Customer's Monthly Network Load:** The Network Customer's monthly Network Load is its hourly load (including its designated Network Load not physically interconnected with Big Rivers under Section 30.3) coincident with Big Rivers' Transmission System Monthly Peak.

**34.3 Determination of Big Rivers' Transmission System Monthly Load:** Big Rivers' Transmission System monthly load is Big Rivers' Transmission System Monthly Peak minus the coincident peak usage of all Firm Point-To-Point Transmission Service customers pursuant to Part

II of this Tariff plus the Reserved Capacity of all Firm Point-To-Point Transmission Service customers.

**34.4 Redispatch Charge:** The Network Customer shall pay a Load Ratio Share of any redispatch costs allocated between the Network Customer and Big Rivers pursuant to Section 33. To the extent that Big Rivers incurs an obligation to the Network Customer for redispatch costs in accordance with Section 33, such amounts shall be credited against the Network Customer's bill for the applicable month.

**35 Operating Arrangements**

**35.1 Operation under The Network Operating Agreement:** The Network Customer shall plan, construct, operate, and maintain its facilities in accordance with Good Utility Practice and in conformance with the Network Operating Agreement.

**35.2 Network Operating Agreement:** The terms and conditions under which the Network Customer shall operate its facilities and the technical and operational matters associated with the implementation of Part III of the

Tariff shall be specified in the Network Operating Agreement with each respective Network Customer. The Network Operating Agreement shall provide for the Parties to (i) operate and maintain equipment necessary for integrating the Network Customer within Big Rivers' Transmission System (including, but not limited to, remote terminal units, metering, communications equipment and relaying equipment), (ii) transfer data between Big Rivers and the Network Customer (including, but not limited to, heat rates and operational characteristics of Network Resources, generation schedules for units outside Big Rivers' Transmission System, interchange schedules, unit outputs for redispatch required under Section 33, voltage schedules, loss factors and other real time data), (iii) use software programs required for data links and constraint dispatching, (iv) exchange data on forecasted loads and resources necessary for long-term planning, and (v) address any other technical and operational considerations required for implementation of Part III of the Tariff, including scheduling



protocols. The Network Operating Agreement will recognize that the Network Customer shall either (i) operate as a Control Area under applicable guidelines of the North American Electric Reliability Council (NERC) and ECAR, (ii) satisfy its Control Area requirements, including all necessary Ancillary Services, by contracting with Big Rivers, or (iii) satisfy its Control Area requirements, including all necessary Ancillary Services, by contracting with another entity, consistent with Good Utility Practice, which satisfies NERC and ECAR requirements. Big Rivers shall not unreasonably refuse to accept contractual arrangements with another entity for Ancillary Services.

**35.3 Network Operating Committee:** A Network Operating Committee (Committee) shall be established to coordinate operating criteria for the Parties' respective responsibilities under the Network Operating Agreement. Each Network Customer shall be entitled to have at least one representative on the Committee. The

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Committee shall meet from time to time as need  
requires, but no less than once each calendar year.

**SCHEDULE 1**

**Scheduling, System Control and Dispatch Service**

This service is required to schedule the movement of power through, out of, within, or into Big Rivers' Control Area.

Scheduling, System Control and Transmission Dispatch Service is to be provided directly by Big Rivers and the Transmission Customer must purchase this service from Big Rivers. The charges for Scheduling, System Control and Transmission Dispatch Service are included within the rates for point-to-point and network transmission service, and include recovery of the developmental costs of Big Rivers' OASIS. Additional user-based fees may in the future be imposed to recover variable costs of operating the OASIS.

Dynamic Scheduling Service also will be provided by Big Rivers to the Transmission Customer as part of this service upon request at costs to be determined. Dynamic Scheduling Service involves the arrangement for moving the electrical effects of load or generation located within one Control Area (or other larger area of coordinated dispatch operation) such that the

electrical effect of the load or generation is recognized in the real-time control and dispatch of another Control Area. Under Dynamic Scheduling Service, Big Rivers agrees to assign certain customer load or generation to another Control Area, and to send the associated control signals to the respective control center of that Control Area. Dynamic Scheduling is implemented through the use of specific telemetry and control equipment, which a Transmission Customer requesting Dynamic Scheduling Service is required to provide and install at its own cost. The provisions under which Big Rivers will provide Dynamic Scheduling Service are set forth below:

- (1) The Transmission Customer may designate any amount of firm Point-to-Point Transmission Service as Dynamic Scheduling Service.
- (2) Designation of any amount of Firm Transmission Service as Dynamic Scheduling Service shall not relieve the Transmission Customer from paying Big Rivers the transmission charges for the total amount of reserved transmission capacity.

(3) The amount of Firm Transmission Service not designated as Dynamic Scheduling Service shall be scheduled pursuant to the terms and conditions of this Tariff.

(4) The amount of Firm Transmission Service designated as Dynamic Scheduling Service need not be scheduled, and no scheduling charge will be levied by Big Rivers.

In addition, assignment to Third Parties and use of Secondary Point(s) of Receipt and Delivery shall not be allowed for Firm Transmission Service designated as Dynamic Scheduling Service.

**SCHEDULE 2**

**Reactive Supply and Voltage Control from  
Generation Sources Service**

In order to maintain transmission voltages on Big Rivers' transmission facilities within acceptable limits, generating units in Big Rivers' Control Area, the output of which is sold to or owned by LEM, are operated to produce (or absorb) reactive power as required by Big Rivers' transmission facilities. All Transmission Customers taking service from Big Rivers under this Tariff must obtain Reactive Supply and Voltage Control from Generation Sources Service from Big Rivers for each transaction on Big Rivers' transmission facilities. The amount of Reactive Supply and Voltage Control from Generation Sources Service that must be supplied with respect to a Transmission Customer's transaction will be determined based on the reactive power support necessary to maintain transmission voltages within limits that are generally accepted in ECAR and consistently adhered to by Big Rivers.

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Reactive Supply and Voltage Control from Generation Sources  
Service is to be provided by Big Rivers, which has made  
arrangements with LEM to provide this service to Big Rivers as  
necessary for operation of Big Rivers' Transmission System. The  
charges for such service will be based on rates which reflect a  
pass-through of the costs charged to Big Rivers by LEM.

**SCHEDULE 3**

**Regulation and Frequency Response Service**

Regulation and Frequency Response Service is necessary to provide for the continuous balancing of resources (generation and interchange) with load within Big Rivers' Control Area and for maintaining scheduled Interconnection frequency at sixty cycles per second (60 Hz). Regulation and Frequency Response Service is accomplished by committing on-line generation in Big Rivers' Control Area, the output of which is sold to or owned by LEM, which output is raised or lowered (predominantly through the use of automatic generating control equipment) as necessary to follow the moment-by-moment changes in load for load located within Big Rivers' Control Area. Because Big Rivers obtains this service from LEM for its own load, Big Rivers has arranged for LEM to provide this service to Big Rivers on a tariff basis for all other loads located within Big Rivers' Control Area. The Transmission Customer must either purchase this service from Big Rivers, or make alternative comparable arrangements to satisfy its Regulation and Frequency Response Service obligation. The



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amount of, and charges for, Regulation and Frequency Response

Service charged by Big Rivers will reflect a pass-through of the  
costs charged to Big Rivers by LEM.

**SCHEDULE 4**

**Energy Imbalance Service**

Energy Imbalance Service is provided when a difference occurs between the scheduled and the actual delivery of energy to a load located within a Control Area over a single hour. Big Rivers is required to arrange for the provision of this service when a Transmission Customer's requested transmission service is used to serve load within Big Rivers' Control Area. Because Big Rivers no longer controls the output of the generation needed to provide this ancillary service and obtains this service from LEM for its native load, Big Rivers has arranged for LEM to provide this service to Big Rivers on a Tariff basis for all other load within Big Rivers' Control Area. Transmission Customers must either purchase this service from Big Rivers or make alternative comparable arrangements to satisfy its Energy Imbalance Service obligation. The amount of, and charges for, Energy Imbalance Service charged by Big Rivers will reflect a pass-through of the costs charged to Big Rivers by LEM.

SCHEDULE 5

**Operating Reserve - Spinning Reserve Service**

Spinning Reserve Service is a reserve service needed to serve load immediately in the event of a system contingency. Spinning Reserve Service may be provided by generating units that are on-line and loaded at less than maximum output. Because Big Rivers no longer controls the output of the generation needed to provide this service, Big Rivers has arranged for LEM to provide this service to Big Rivers' native load and to provide this service to Big Rivers on a tariff basis for the benefit of all Transmission Customers taking transmission service to serve load located within Big Rivers' Control Area. The Transmission Customer must either purchase this service from Big Rivers or make alternative comparable arrangements to satisfy its Spinning Reserve Service obligation. The amount of, and charges for, Spinning Reserve Service will reflect a pass through of the costs charged to Big Rivers by LEM.

**SCHEDULE 6**

**Operating Reserve - Supplemental Reserve Service**

Supplemental Reserve Service is needed to serve load in the event of a system contingency; however, it is not available immediately to serve load but rather within a short period of time. Supplemental Reserve Service may be provided by generating units that are on-line but unloaded, by quick-start generation, or by interruptible load. Because Big Rivers no longer controls the output of the generation needed to provide this service, Big Rivers has arranged for LEM to provide this service to Big Rivers' native load and to provide this service to Big Rivers on a tariff basis for the benefit of Transmission Customers taking transmission service to serve load located within Big Rivers' Control Area. The Transmission Customer must either purchase this service from Big Rivers or make alternative comparable arrangements to satisfy its Supplemental Reserve Service obligation. The amount of, and charges for, Supplemental Reserve Service will reflect a pass-through of the costs charged to Big Rivers by LEM.

SCHEDULE 7

Rate Schedule FTS

Long-Term Firm and Short-Term Firm Point-To-Point  
Transmission Service

The Transmission Customer shall compensate Big Rivers each month for Reserved Capacity at the sum of the applicable charges set forth below:

- 1) Yearly delivery: one-twelfth of the demand charge of \$ 11.80/KW of Reserved Capacity per year.
- 2) Monthly delivery: \$0.98/KW of Reserved Capacity per month.
- 3) Weekly delivery: \$0.227/KW of Reserved Capacity per week.
- 4) Daily delivery: \$0.045/KW of Reserved Capacity per day.

The total demand charge in any week, pursuant to a reservation for Daily delivery, shall not exceed the rate specified in

section (3) above times the highest amount in kilowatts of Reserved Capacity in any day during such week.

5) **Discounts:** Three principal requirements apply to discounts for transmission service as follows (1) any offer of a discount made by Big Rivers must be announced to all Eligible Customers solely by posting on the OASIS, (2) any customer initiated requests for discounts (including requests for use by one's wholesale merchant or an affiliate's use) must occur solely by posting on the OASIS, and (3) once a discount is negotiated, details must be immediately posted on the OASIS. For any discount agreed upon for service on a path, from point(s) of receipt to point(s) of delivery, Big Rivers must offer the same discounted service rate for the same time period to all Eligible Customers on all unconstrained transmission paths that go to the same point(s) of delivery on the Transmission System.

SCHEDULE 8

Rate Schedule STNF

Short-Term Non-Firm Point-To-Point Transmission Service

The Transmission Customer shall compensate Big Rivers for Non-Firm Point-To-Point Transmission Service up to the sum of the applicable charges set forth below:

- 1) **Monthly delivery:** up to \$0.98/KW of Reserved Capacity per month.
- 2) **Weekly delivery:** up to \$0.227/KW of Reserved Capacity per week.
- 3) **Daily delivery:** up to \$0.045/KW of Reserved Capacity per day.

The total demand charge in any week, pursuant to a reservation for Daily delivery, shall not exceed the rate specified in section (2) above times the highest amount in kilowatts of Reserved Capacity in any day during such week.

- 4) **Discounts:** Three principal requirements apply to discounts for transmission service as follows (1) any offer of a discount made by Big Rivers must be announced to all Eligible Customers

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solely by posting on the OASIS, (2) any customer initiated requests for discounts (including requests for use by one's wholesale merchant or an affiliate's use) must occur solely by posting on the OASIS, and (3) once a discount is negotiated, details must be immediately posted on the OASIS. For any discount agreed upon for service on a path, from point(s) of receipt to point(s) of delivery, Big Rivers must offer the same discounted service rate for the same time period to all Eligible Customers on all unconstrained transmission paths that go to the same point(s) of delivery on the Transmission System.



SCHEDULE 9

Rate Schedule HNF

Hourly Non-Firm Point-To-Point Transmission Service

The Transmission Customer shall compensate Big Rivers for Hourly Non-Firm Point-To-Point Transmission Service up to the sum of the applicable charges set forth below:

**Basic Charge for Hourly delivery:** The basic charge shall be that agreed upon by the Parties at the time this service is reserved and in no event shall exceed \$2.836/MWH. The total demand charge in any day, pursuant to a reservation for Hourly delivery, shall not exceed the rate specified in section (3) of Rate Schedule STNF times the highest amount in kilowatts of Reserved Capacity in any hour during such day. In addition, the total demand charge in any week, pursuant to a reservation for Hourly or Daily delivery, shall not exceed the rate specified in section (2) of Rate Schedule STNF times the highest amount in kilowatts of Reserved Capacity in any hour during such week.

SCHEDULE 10

Real Power Loss Factor Calculation

Real Power Losses are associated with all Transmission Service and must be provided by all Transmission Customers taking service under this Tariff. In January of every year, the average loss rate for the previous calendar year shall be calculated in the following manner:

$$\text{average loss rate} = \frac{\text{annual power losses}}{\text{Big Rivers' deliveries of energy}}$$

with

annual power losses = [Big Rivers' receipts of energy - Big Rivers' deliveries of energy].

Big Rivers' receipts of energy shall be determined as the sum of:

(i) energy from generation in Big Rivers' control area (excluding all generating station use but including scheduled energy reimbursements for losses rendered to Kentucky Utilities in accordance with the Interconnection Agreement between Big Rivers and Kentucky Utilities); (ii) imports of energy for delivery within Big Rivers' control area (determined at Big Rivers'

receipt points, including dynamically scheduled loads); (iii) receipts of energy for wheeling-through transmission by others; and (iv) net inadvertent power exchanges with other control areas (i.e., inadvertent receipts minus inadvertent deliveries).

Big Rivers' deliveries of energy shall be determined as the sum of: (i) all deliveries of energy to destinations located within Big Rivers' control area (including deliveries to Henderson Municipal Power & Light); (ii) exports of energy from Big Rivers' control area (measured at Big Rivers' delivery points, including dynamically scheduled exports); and (iii) deliveries of energy for wheeling through transmission by others.

Energy exports associated with the loss makeup responsibility to Kentucky Utilities (in accordance with the Interconnection Agreement between Big Rivers and Kentucky Utilities) shall not be counted as part of Big Rivers' deliveries of energy.

The three-year average of the most currently recalculated annual loss rate and the annual loss rates calculated for each of the previous two years (with 2.0% as the established annual loss rate for 1994, 1995 and 1996) shall become the effective annual loss rate as of February 1 in each year.

ATTACHMENT A

Form Of Service Agreement For  
Firm Point-To-Point Transmission Service

- 1.0 This Service Agreement, dated as of \_\_\_\_\_, is entered into, by and between \_\_\_\_\_ (Big Rivers), and \_\_\_\_\_ ("Transmission Customer").
- 2.0 The Transmission Customer has been determined by Big Rivers to have a Completed Application for Firm Point-To-Point Transmission Service under the Tariff.
- 3.0 The Transmission Customer has provided to Big Rivers an Application deposit in the amount of \$\_\_\_\_\_, in accordance with the provisions of Section 17.3 of the Tariff.
- 4.0 Service under this agreement shall commence on the later of (1) the requested service commencement date \_\_\_\_\_, or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as it is permitted to become effective by the Commission. Service under this agreement shall terminate on such date as mutually agreed upon by the parties \_\_\_\_\_.
- 5.0 Big Rivers agrees to provide and the Transmission Customer agrees to take and pay for Firm Point-To-Point Transmission Service in accordance with the provisions of Part II of the Tariff and this Service Agreement.

6.0 Any notice or request made to or by either Party regarding this Service Agreement shall be made to the representative of the other Party as indicated below.

Transmission Provider:

Big Rivers Electric Corporation  
201 Third Street, P.O. Box 24  
Henderson, Kentucky 42420  
Telephone No. (502) 827-2561

Transmission Customer:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7.0 The Tariff is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: \_\_\_\_\_  
Name Title Date

Transmission Customer:

By: \_\_\_\_\_  
Name Title Date

Specifications For Long-Term Firm Point-To-Point  
Transmission Service

1.0 Term of Transaction: \_\_\_\_\_

Start Date: \_\_\_\_\_

Termination Date: \_\_\_\_\_

2.0 Description of capacity and energy to be transmitted by Big Rivers including the electric Control Area in which the transaction originates.

\_\_\_\_\_

3.0 Point(s) of Receipt: \_\_\_\_\_

Delivering Party: \_\_\_\_\_

4.0 Point(s) of Delivery: \_\_\_\_\_

Receiving Party: \_\_\_\_\_

5.0 Maximum amount of capacity and energy to be transmitted (Reserved Capacity): \_\_\_\_\_

6.0 Designation of party(ies) subject to reciprocal service obligation: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7.0 Name(s) of any Intervening Systems providing transmission service: \_\_\_\_\_  
\_\_\_\_\_

8.0 Service under this Agreement may be subject to some combination of the charges detailed below. (The appropriate charges for individual transactions will be determined in accordance with the terms and conditions of the Tariff.)

8.1 Transmission Charge: \_\_\_\_\_  
\_\_\_\_\_

8.2 System Impact and/or Facilities Study Charge(s):  
\_\_\_\_\_  
\_\_\_\_\_

8.3 Direct Assignment Facilities Charge: \_\_\_\_\_  
\_\_\_\_\_

8.4 Ancillary Services Charges: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ATTACHMENT B

Form Of Service Agreement For Non-Firm Point-To-Point  
Transmission Service

- 1.0 This Service Agreement, dated as of \_\_\_\_\_, is entered into, by and between \_\_\_\_\_ (Big Rivers), and \_\_\_\_\_ (Transmission Customer).
- 2.0 The Transmission Customer has been determined by Big Rivers to be a Transmission Customer under Part II of the Tariff and has filed a Completed Application for Non-Firm Point-To-Point Transmission Service in accordance with Section 17.2 of the Tariff.
- 3.0 Service under this Agreement shall be provided by Big Rivers upon request by an authorized representative of the Transmission Customer.
- 4.0 The Transmission Customer agrees to supply information Big Rivers deems reasonably necessary in accordance with Good Utility Practice in order for it to provide the requested service.
- 5.0 Big Rivers agrees to provide and the Transmission Customer agrees to take and pay for Non-Firm Point-To-Point Transmission Service in accordance with the provisions of Part II of the Tariff and this Service Agreement.
- 6.0 Any notice or request made to or by either Party regarding this Service Agreement shall be made to the representative of the other Party as indicated below.



Big Rivers Electric Corporation

Open Access Transmission Tariff  
Original Sheet No. 154

Page 2 of 2

Transmission Provider:

Big Rivers Electric Corporation  
201 Third Street, P.O. Box 24  
Henderson, Kentucky 42420  
Telephone No. (502) 827-2561

Transmission Customer:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7.0 The Tariff is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: \_\_\_\_\_  
Name Title Date

Transmission Customer:

By: \_\_\_\_\_  
Name Title Date

**ATTACHMENT C**

**Methodology to Assess Available Transmission Capability**

Big Rivers will assess the capability of the Transmission System to provide the service requested using the criteria and process for this assessment as detailed in Big Rivers' FERC Form 715 submittal. In determining the level of capacity available for new Transmission Service requests, Big Rivers may exclude, from capacity to be made available for new Transmission Service requests, that capacity needed to meet current and reasonably forecasted load of Native Load Customers and Network Customers, existing firm Point-To-Point Transmission Services customers, previously received pending Applications for firm Point-To-Point Transmission Service and to meet existing contractual obligations under other tariffs and rate schedules.

In subsequent updates, Big Rivers will compute the transmission transfer capability available from the Delivering Party to the Receiving Party using Good Utility Practice and the engineering and operating principles, standards, guidelines and criteria of Big Rivers, ECAR, and any entity of which Big Rivers is a member and which has been approved by the Commission to promulgate or apply regional or national reliability planning standards (such as an RTG), or any similar organization that may exist in the future of which Big Rivers is then a member. Principal items used to determine maximum transmission transfer capability available include reliability, transmission element loading, system contingency performance, voltage levels, and stability, and other criteria specified in Form 715.

ATTACHMENT D

Methodology for Completing a System Impact Study

Big Rivers will assess the capability of the Transmission System to provide service requested pursuant to this Agreement. Big Rivers will determine whether a proposed use of the Transmission System results in transmission interface loading such that First Contingency Total Transfer Capability (FCTTC) is not exceeded. The FCTTC shall be as defined by NERC.

"Acceptable" and "unacceptable" steady-state voltages and facility loadings are defined by criteria established by ECAR and other utility systems with which Big Rivers is interconnected.

In addition to the steady-state performance criteria described above, Big Rivers Transmission System is also designed taking into account dynamic stability performance to ensure any credible disturbance (short circuit or equipment disconnection) does not result in cascading tripping of transmission facilities. The criteria applied are those established by ECAR.

Transmission System performance for the requested service shall include a consideration of (i) the loads and projected loads of Big Rivers' native load customers, (ii) the loads of firm Point to Point Transmission Customers under this Agreement and pursuant to other agreements, rate schedules and contracts; (iii) transmission service to be provided in response to previously pending Valid Requests for transmission service under this Agreement and other contracts. Transmission Service to native load customers involves consideration of local transmission facility performance, in addition to consideration of any transmission interface transfer capability. This planning is performed the same as transmission planning for Big Rivers' native load. The primary design criterion for the Transmission System is that failure of any one circuit or piece of equipment should not

cause a sustained outage or unacceptably high or low voltage to customer load, nor should it cause excessive loading on Transmission System equipment. This must be satisfied at any load level, during peak load periods as well as off-peak periods.

The exceptions to this "single contingency" criterion are (i) small distribution substations which may be supplied by a single transmission line, and (ii) large groupings of substations for which double contingency system design may be employed.

Big Rivers Electric Corporation

Open Access Transmission Tariff  
Original Sheet No. 158

ATTACHMENT E

Index Of Point-To-Point Transmission Service Customers

<u>Customer</u>	<u>Date of Service Agreement</u>
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ATTACHMENT F

Service Agreement For  
Network Integration Transmission Service

I. GENERAL TERMS AND CONDITIONS

1.0 This Service Agreement, dated as of \_\_\_\_\_, is entered into, by and between Big Rivers Electric Corporation (hereinafter Big Rivers), and \_\_\_\_\_ (hereinafter Transmission Customer).

2.0 The Transmission Customer has been determined by Big Rivers to have completed satisfactorily an Application for Network Integration Transmission Service;

3.0 Service under this Agreement shall commence on the later of: (1) \_\_\_\_\_, or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as agreed to by the parties hereto. Service under this Agreement shall terminate on \_\_\_\_\_;

4.0 Big Rivers agrees to provide and the Transmission Customer agrees to take and pay for Network Integration

Big Rivers Electric Corporation

Open Access Transmission Tariff  
Original Sheet No. 160

Service in accordance with the provisions of the Tariff and this Service Agreement.

5.0 Any notice or request made to or by either party to this Agreement regarding this Service Agreement shall be made to the representative of the other party as indicated below.

Big Rivers Electric Corporation  
201 Third Street  
P.O. Box \_\_\_\_\_  
Henderson, Kentucky \_\_\_\_\_

Transmission Customer  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6.0 The Big Rivers Open Access Transmission Tariff, the attached Specifications for Network Integration Transmission Service, and Network Operating Agreement are incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the parties to this Agreement have caused this Service Agreement to be executed by their respective authorized officials.

Big Rivers Electric Corporation

Open Access Transmission Tariff  
Original Sheet No. 161

Big Rivers Electric Corporation

By: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_

Transmission Customer

By: \_\_\_\_\_

Date: \_\_\_\_\_

Title: \_\_\_\_\_



**SPECIFICATIONS FOR NETWORK INTEGRATION TRANSMISSION SERVICE**

1.0 Term of Network Service: \_\_\_\_\_

Start Date: \_\_\_\_\_

Termination Date: \_\_\_\_\_

2.0 Description of capacity and/or energy to be transmitted  
by Big Rivers across Big Rivers' Transmission System  
(including electric control are in which the transaction  
originates).

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3.0 Network Resources

(1) Transmission Customer Generation Owned:

Resource    Capacity    Capacity Designated as Network Resource

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(2) Transmission Customer Generation Purchased:

Source                      Contract Description                      Capacity

---

---

---

\_\_\_\_\_

Total Network Resources Capacity: (1) + (2) = \_\_\_\_\_

4.0 Network Load

(1) Transmission Customer Network Load:

<u>Network Load</u>	<u>Transmission Voltage Level</u>
_____	_____
_____	_____
_____	_____

(2) Member Systems Load Designated as Network Load:

<u>Network Load</u>	<u>Transmission Voltage Level</u>
_____	_____
_____	_____
_____	_____

5.0 Designation of party subject to reciprocal service obligation: \_\_\_\_\_

6.0 Service under this Agreement may be subject to some combination of the charges below. (The appropriate charges for individual transactions will be determined in accordance with the Terms and Conditions of the Open Access Transmission Tariff).

6.1 Load Ratio Share of Annual Transmission Revenue

Requirement: \_\_\_\_\_

6.2 Gross Up in Load Ratio Share for Average System

Transmission Losses: \_\_\_\_\_

6.3 Facilities Study Charge: \_\_\_\_\_

\_\_\_\_\_

6.4 Direct Assignment Facilities Charge: \_\_\_\_\_

\_\_\_\_\_

6.5 Ancillary Services Charges: \_\_\_\_\_

\_\_\_\_\_

6.6 Redispatch Charges: \_\_\_\_\_

\_\_\_\_\_

Big Rivers Electric Corporation

Open Access Transmission Tariff  
Original Sheet No. 165

**ATTACHMENT G**

**Network Operating Agreement**

[To be developed between Big Rivers and future network  
customers]

Big Rivers Electric Corporation

Open Access Transmission Tariff  
Original Sheet No. 166

ATTACHMENT H

Annual Transmission Revenue Requirement  
For Network Integration Transmission Service

1. The Annual Transmission Revenue Requirement for purposes of the Network Integration Transmission Service shall be \$16,887,915.
  
2. The amount in (1) shall be effective until amended by Big Rivers or modified by the applicable regulatory commission.

Big Rivers Electric Corporation

Open Access Transmission Tariff  
Original Sheet No. 167

ATTACHMENT I

Index Of Network Integration Transmission Service Customers

<u>Customer</u>	<u>Date of Service Agreement</u>
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SUBJECT TO COURT ORDER**

TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

EXHIBIT 2

**Available Transfer Capacity at Specified Points of Delivery  
(as of the Effective Date)**

**PLANTS**

Coleman Station:

- two 161 kV transmission lines (C1 and C2)	530 MVA
- Hoosier Energy interconnection	<u>250 MVA</u>
<b>Coleman Sub-Total</b>	<b>780 MVA</b>
- five 161 kV transmission lines of NSA	1325 MVA
<b>Coleman Total</b>	<b>2105 MVA*</b>

Wilson Station:

- two 161/345 kV transformers (maximum rating)	840 MVA
- one Kentucky Utilities Company interconnection	<u>530 MVA</u>
<b>Wilson Total</b>	<b>1370 MVA*</b>

HMP&L Station Two/Green Station:

- two 161 kV transmission lines (R1 and R2)	772 MVA
- Daviess County 161 kV transmission line	265 MVA
- Henderson County 161 kV transmission line	265 MVA
- two 161/69 kV transformers (maximum rating)	<u>224 MVA</u>
<b>Reid 161 kV Sub-Total</b>	<b>1529 MVA</b>
- four 161 kV transmission lines to Alcan	<u>1060 MVA</u>
<b>HMP&amp;L/Green Total</b>	<b>2589 MVA*</b>

Reid Station:

- Onton 69 kV line	40 MVA
- Sebree 69 kV line	40 MVA
- Corydon 69 kV line	52 MVA
- Niagara 69 kV line	33 MVA
- St. Joe 69 kV line	52 MVA
- Guffie 69 kV line	52 MVA
- HMP&L 69 kV line	<u>52 MVA</u>
<b>Reid Total</b>	<b>321 MVA*</b>

**Grand Total (without smelter lines) 4000 MVA\***

**Grand Total (with smelter lines) 6385 MVA\***

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

**BIG RIVERS' INTERCONNECTION WITH OTHER UTILITIES**

<u>Company</u>	<u>Number</u>	<u>Voltage</u>	<u>Capacity*</u>
1. Tennessee Valley Authority	7	(6) 161 kV (1) 69 kV	1564 MVA
2. Louisville Gas and Electric Company	1	138 kV**	224 MVA
3. Southern Indiana Gas and Electric Company	1	138 kV	224 MVA
4. Hoosier Energy REC	1	161 kV	250 MVA
5. Southern Illinois Power Cooperative	2	(1) 161 kV (1) 69 kV	292 MVA
6. Henderson Municipal Power and Light	3	(1) 161 kV (2) 69 kV	177 MVA
7. Kentucky Utilities Company - existing **	2	(1) 138 kV** (1) 161 kV	224 MVA 530 MVA

\* Does not indicate simultaneous transfer capability.

\*\* Common transformer for both interconnections; transfer cannot exceed transformer rating.



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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

**EXHIBIT 3**

**Description of Existing Transmission System**

The attached system map shows an overview of Big Rivers' transmission system as well as the service territories of the four distribution cooperatives. Plant sites, transmission lines, substations, and interconnections are identified on the map.

Approximately 67 miles of 345 kV transmission line and 350 miles of 161 kV and 138 kV transmission line make up the bulk transmission system. As indicated on the system map, the 345 kV network connects the three plant sites. Big Rivers' system also includes a 69 kV sub-transmission power delivery system which includes approximately 771 miles of 69 kV transmission line.

The 69 kV sub-transmission system supplies power to 86 rural distribution and small commercial/industrial substations. One of the substations is owned and maintained by Big Rivers while the remaining 85 are owned and maintained by the four distribution cooperatives or the respective commercial/industrial customers. In addition to the 69 kV power delivery system, six large industrial substations are served directly from the 161 kV network.

Big Rivers' transmission system also consists of several high voltage and extra-high voltage (EHV) substations. These substations include three 345 kV substations representing a total capacity of 1800 MVA, and twelve 161 kV substations representing 1610 MVA of capacity.

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

EXHIBIT 4

**Real Power Loss Factor Calculation**

Real Power Losses are associated with all Transmission Service and must be provided by all Transmission Customers taking service under this Tariff. In January of every year, the average loss rate for the previous calendar year shall be calculated in the following manner:

$$\text{annual loss rate} = \frac{\text{annual power losses}}{\text{Big Rivers' deliveries of energy}}$$

with

$$\text{annual power losses} = [\text{Big Rivers' receipts of energy} - \text{Big Rivers' deliveries of energy}]$$

Big Rivers' receipts of energy shall be determined as the sum of: (i) energy from generation in Big Rivers' control area (excluding all generating station use but including scheduled energy reimbursements for losses rendered to Kentucky Utilities in accordance with the Interconnection Agreement between Big Rivers and Kentucky Utilities); (ii) imports of energy for delivery within Big Rivers' control area (determined at Big Rivers' receipt points, including dynamically scheduled loads); (iii) receipts of energy for wheeling-through transmission by others; and (iv) net inadvertent power exchanges with other control areas (i.e., inadvertent receipts minus inadvertent deliveries).

Big Rivers' deliveries of energy shall be determined as the sum of: (i) all deliveries of energy to destinations located within Big Rivers' control area (including deliveries to HMP&L); (ii) exports of energy from Big Rivers' control area (measured at Big Rivers' delivery points, including dynamically scheduled exports); (iii) deliveries of energy for wheeling through transmission by others.

Energy exports associated with the loss makeup responsibility to Kentucky Utilities (in accordance with the Interconnection Agreement between Big Rivers and Kentucky Utilities) shall not be counted as part of Big Rivers' deliveries of energy.

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

The three-year average of the most currently recalculated annual loss rate and the annual loss rates calculated for each of the previous two years (with 2.0% as the established annual loss rate for 1994, 1995, and 1996) shall become the effective annual loss rate as of February 1 in each year.

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TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

**EXHIBIT 5**

**Big Rivers' Delivery Point Metering  
As of the Effective Date**

**GREEN RIVER ELECTRIC**

All 27 rural delivery points are metered at 12,470 volts

**Industrials' delivery point metering voltage**

- ACMI	13,800 volts
- Commonwealth Aluminum #1	13,800 volts
- Commonwealth Aluminum #2	13,800 volts
- Commonwealth Aluminum #3	13,800 volts
- Alcoa-Hawesville Works	13,800 volts
- NSA #0	161,000 volts
- NSA #1	161,000 volts
- NSA #2	161,000 volts
- NSA #3	161,000 volts
- NSA #4	161,000 volts
- Kimberly-Clark #1	161,000 volts
- Kimberly-Clark #2	161,000 volts
- Willamette #1	12,470 volts
- Willamette #2	12,470 volts
- Willamette #3	12,470 volts
- Worldsource #1	13,800 volts
- Worldsource #2	13,800 volts

**HENDERSON UNION ELECTRIC**

14 rural delivery points are measured at 12,470 volts  
1 rural delivery point is measured at 25,000 volts

**Industrials' delivery point metering voltage**

- Accuride	12,470 volts
- Alcan #1	161,000 volts
- Alcan #2	161,000 volts
- Alcan #3	161,000 volts
- Alcan #SB	161,000 volts
- Black Diamond Mine	7,200 volts
- C.R. Mining	69,000 volts

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**TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT**

- Cardinal River Resources	7,200 volts
- Dotiki #3	12,470 volts
- Hudson Foods #1	25,000 volts
- Hudson Foods #2	25,000 volts
- KBA #1	4,160 volts
- KBA #2	4,160 volts
- Lodestar Energy	69,000 volts
- Peabody Breckenridge	69,000 volts
- P&M Mine	69,000 volts
- Patriot Mine	69,000 volts
- Smith Coal	69,000 volts
- Valley Grain	12,470 volts
- Victory Processing	7,200 volts

**JACKSON PURCHASE ELECTRIC**

All 23 rural delivery points are metered at 12,470 volts

Industrials' delivery point metering voltage:

- Shell Oil 4,160 volts

**MEADE COUNTY ELECTRIC**

All 14 rural delivery points are metered at 12,470 volts

No industrial delivery points

**CONFIDENTIAL PROTECTED MATERIAL  
SUBJECT TO COURT ORDER**

TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

EXHIBIT 6

**Maximum Net Dependable Capacity of Big Rivers'  
Generating Plant Units  
as of July 15, 1998.<sup>1/</sup>**

<u>Unit</u>	<u>Maximum Net Dependable Capacity (MW)</u>
Reid Unit #1	65
Reid Combustion Turbine	65
Coleman Unit #1	150
Coleman Unit #2	150
Coleman Unit #3	155
Green Unit #1	231
Green Unit #2	223
Wilson Unit #1	420
Henderson Station Two Unit 1	153
Henderson Station Two Unit 2	159

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<sup>1/</sup> The maximum net dependable capacity of the generating plant units is subject to change from time-to-time, and shall be determined at any given point in time based on the then-applicable maximum net dependable capacity of the generating plant units, irrespective of amounts shown above.

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SUBJECT TO COURT ORDER**

TRANSMISSION SERVICE AND INTERCONNECTION AGREEMENT

**SCHEDULE 6.5**

**Applications for Transmission Service**

Other than applications filed by LEM, there are no pending applications for transmission service.

## SCHEDULE 15.1

### Liens, Encumbrances, and Rights to Use Big Rivers' Transmission System (as of July 15, 1998)

#### A. Liens and Encumbrances

1. Pole Attachment Agreement dated September 6, 1984 between Big Rivers Electric Corporation and Webster Cable Television and Pole Attachment Agreement dated April 25, 1988 between Big Rivers Electric Corporation and Owensboro Cablevision (Ervin Cable Television), each as assigned to Owensboro On the Air, Inc. by Letter dated December 8, 1988, and subsequently assigned to Century Venture Corporation.
2. Pole Attachment Agreement dated November 4, 1992 between Big Rivers Electric Corporation and Comcast Cablevision.

#### B. Rights of Others to Use the Transmission System

1. Power Plant Construction and Operation Agreement between City of Henderson, Kentucky and Big Rivers Electric Corporation dated August 1, 1970, as amended. Section 5.3 grants for City's use, at no cost to City, surplus capacity on Big Rivers' two 69 kV transmission lines from point of City's Station Two switchyard to points of substations of City's existing system. Big Rivers also gives City rights in any surplus capacity on additional transmission facilities controlled by Big Rivers permitting transmission from City's Station Two to its Existing System.
2. Amendment to Interconnection Agreement Dated April 1, 1968, dated October 13, 1981 between Hoosier Energy Rural Electric Cooperative Inc., Southern Illinois Power Cooperative, Big Rivers Electric Corporation, and City of Henderson, Kentucky. Section 3.02 of that agreement provides that transmission facilities of each party's transmission system will first be used to supply the requirements of the party's own consumers and commitments but that transmission capacities that are available in excess of such requirements will be made available to the other parties for their use. Applicable wheeling charges are 1.5 mills per kilowatt-hour under Service Schedule I Displacement Service. Other than SEPA power commitments of the City of Henderson described in 4 below, no transactions are currently occurring under this Agreement.
3. May 21, 1996 Letter Agreement between Big Rivers and Henderson Municipal Power & Light Co. for the sale of fifteen megawatts from June 1, 1996 through May 31, 2000. 15 MW of transmission use associated with this sale between Station Two switchyard 161 kV line owned by HMP&L, 69 kV and Reid EHV 161 kV to City's system. Transmission usage reduced to 10 MW by letter dated



December 9, 1997.

4. July 30, 1984 Letter Agreement between Big Rivers and HMP&L provides that Big Rivers will provide firm transmission service for energy scheduled by HMP&L at the same rate offered for wheeling of displacement power under the Agreement described above in item 2. Rate for SEPA power taken by HMP&L and transmitted over Big Rivers' system is thus 1.5 mills per kWh.
5. February 1, 1981 Transmission Line Agreement between Big Rivers Electric Corporation and Southern Illinois Power Cooperative. Southern Illinois Power Cooperative leases a 161 kV line owned by Big Rivers that extends from Barkley Dam to the river crossing of the Ohio River near Bay City, Illinois for \$2,000 a month. Southern Illinois gets all capacity in this line not used by Big Rivers for its own internal load. Extended on year to year basis. —
6. Letter Agreement TV-65748A between Big Rivers Electric Corporation and the Tennessee Valley Authority dated January 16, 1985. This agreement provides for points of delivery near TVA's Shawnee Steam Plant and at TVA's Marshall Substation. Under Section 10, TVA is entitled to the use of the Livingston-McCracken Line, the Livingston-Barkley Hydro 161-kV line, and all associated terminal facilities to transmit power between TVA facilities at the Shawnee Steam Plant, the Barkley Hydro Plant, and the TVA facilities at the Marshall Delivery Point. TVA use can be interrupted if it creates reliability problem on Big Rivers' system or if use of this capacity could jeopardize Big Rivers' service to its customers. Ten year agreement, currently extended on year to year basis.
7. Long-Term Firm Power Purchase Agreement Between Big Rivers Electric Corporation and Oglethorpe Power Corporation dated December 17, 1990, as amended by Amendment No. 1 dated February 17, 1992. 103 MW of firm transmission on Big Rivers' transmission system is required to transmit power to TVA for delivery by TVA to Georgia Integrated Transmission System. In addition, another 100 MW available to Oglethorpe as Surplus Capacity, for which no firm transmission capacity is required to be reserved.
8. Peaking Power Agreement dated March 11, 1993 Between Big Rivers Electric Corporation and Hoosier Energy Rural Electric Cooperative Inc. During 1998, from June through September, Hoosier is entitled to up to 150 MW of power, and during 1999, from June through September, Hoosier is entitled to up to 170 MW of power. Transmission off-system to Hoosier on a firm basis is bundled into the rates for this power.
9. Unit Power Agreement dated September 14, 1990 between Big Rivers Electric Corporation and Hoosier Energy Rural Electric Cooperative Inc. From June 15 through September 15 of each year through September 15 of the year 2000, Hoosier has access to the unit power of the 65 MW Reid Combustion Turbine.

Transmission off-system to Hoosier on a firm basis is bundled into the rates for this power.

10. June 30, 1984 agreement between Big Rivers and the Southeastern Power Administration ("SEPA") (Contract No. 89-00-1501-637), as amended, provides for the sale by SEPA of 178 MW to Big Rivers.

## ATTACHMENT A

Form Of Service Agreement For  
Firm Point-To-Point Transmission Service

- 1.0 This Service Agreement, dated as of <sup>November 9</sup>~~October~~ \_\_\_\_, 1998, is entered into, by and between Big Rivers Electric Corporation (Big Rivers), and LG&E Energy Marketing Inc. ("Transmission Customer").
- 2.0 The Transmission Customer has been determined by Big Rivers to have a Completed Application for Firm Point-To-Point Transmission Service under the Tariff.
- 3.0 The Transmission Customer has provided to Big Rivers an Application deposit in the amount of \$ N/A, in accordance with the provisions of Section 17.3 of the Tariff.
- 4.0 Service under this agreement shall commence on the later of (1) the requested service commencement date September 1, 1998 or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as it is permitted to become effective by the Commission. Service under this agreement shall terminate on January 1, 2000 or such date as mutually agreed upon by the parties.
- 5.0 Big Rivers agrees to provide and the Transmission Customer agrees to take and pay for Firm Point-To-Point Transmission Service in accordance with the provisions of Part II of the Tariff and this Service Agreement.

6.0 Any notice or request made to or by either Party regarding this Service Agreement shall be made to the representative of the other Party as indicated below.

Transmission Provider:

Big Rivers Electric Corporation  
201 Third Street, P.O. Box 24  
Henderson, Kentucky 42420  
Telephone No. (502) 827-2561

Transmission Customer:

LG&E Energy Marketing Inc.  
220 W. Main Street, 7<sup>th</sup> Floor  
Louisville, KY 40241  
Telephone No. (502) 627-4276

7.0 The Tariff is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: Travis D. Housley V3 57501R 11-9-98  
Name TRAVIS D. HOUSLEY Title Date

Transmission Customer:

By: D. [Signature] Director 10/30/98  
Name Title Unregulated Marketing Date

**Specifications For Long-Term Firm Point-To-Point  
Transmission Service**

**1.0 Term of Transaction: 8/1/1998- 12/31/1999**

**Start Date: 8/1/1998**

**Termination Date: 1/1/2000**

**2.0 Description of capacity and energy to be transmitted by Big Rivers including the electric Control Area in which the transaction originates.**

**Firm Capacity and Energy originating from BREC Control Area**

**3.0 Point(s) of Receipt: WKE**

**Delivering Party: LG&E Energy Marketing Inc.**

**4.0 Point(s) of Delivery: TVA**

**Receiving Party: TVA**

**5.0 Maximum amount of capacity and energy to be transmitted  
(Reserved Capacity): 51 MW**

**6.0 Designation of party(ies) subject to reciprocal service obligation:**

**N/A**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**7.0 Name(s) of any Intervening Systems providing transmission service: N/A**

**8.0 Service under this Agreement may be subject to some combination of the charges detailed below. (The appropriate charges for individual transactions will be determined in accordance with the terms and conditions of the Tariff.)**

**8.1 Transmission Charge:** \_\_\_\_\_  
\_\_\_\_\_

**8.2 System Impact and/or Facilities Study Charge(s):**  
\_\_\_\_\_  
\_\_\_\_\_

**8.3 Direct Assignment Facilities Charge:** \_\_\_\_\_  
\_\_\_\_\_

**8.4 Ancillary Services Charges:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ATTACHMENT A

Form Of Service Agreement For  
Firm Point-To-Point Transmission Service

- 1.0 This Service Agreement, dated as of <sup>November 9</sup> ~~October~~ 9, 1998, is entered into, by and between Big Rivers Electric Corporation (Big Rivers), and LG&E Energy Marketing Inc. ("Transmission Customer").
- 2.0 The Transmission Customer has been determined by Big Rivers to have a Completed Application for Firm Point-To-Point Transmission Service under the Tariff.
- 3.0 The Transmission Customer has provided to Big Rivers an Application deposit in the amount of \$ N/A, in accordance with the provisions of Section 17.3 of the Tariff.
- 4.0 Service under this agreement shall commence on the later of (1) the requested service commencement date August 1, 1998 or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as it is permitted to become effective by the Commission. Service under this agreement shall terminate on January 1, 2000 or such date as mutually agreed upon by the parties.
- 5.0 Big Rivers agrees to provide and the Transmission Customer agrees to take and pay for Firm Point-To-Point Transmission Service in accordance with the provisions of Part II of the Tariff and this Service Agreement.

6.0 Any notice or request made to or by either Party regarding this Service Agreement shall be made to the representative of the other Party as indicated below.

Transmission Provider:

Big Rivers Electric Corporation  
201 Third Street, P.O. Box 24  
Henderson, Kentucky 42420  
Telephone No. (502) 827-2561

Transmission Customer:

LG&E Energy Marketing Inc.  
220 W. Main Street, 7<sup>th</sup> Floor  
Louisville, KY 40241  
Telephone No. (502) 627-4276

7.0 The Tariff is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: Travis D. Hooley VP SYS OPR 11-9-98  
Name TRAVIS D. HOOLEY Title Date

Transmission Customer:

By: D. [Signature] Director 10/30/98  
Name Title Unregulated Marketing Date



**Specifications For Long-Term Firm Point-To-Point  
Transmission Service**

**1.0 Term of Transaction: 8/1/1998- 12/31/1999**

**Start Date: 8/1/1998**

**Termination Date: 1/1/2000**

**2.0 Description of capacity and energy to be transmitted by Big Rivers including the electric Control Area in which the transaction originates.**

**Firm Capacity and Energy originating from BREC Control Area**

**3.0 Point(s) of Receipt: WKE**

**Delivering Party: LG&E Energy Marketing Inc.**

**4.0 Point(s) of Delivery: TVA**

**Receiving Party: TVA**

**5.0 Maximum amount of capacity and energy to be transmitted  
(Reserved Capacity): 51 MW**

**6.0 Designation of party(ies) subject to reciprocal service obligation:**

**N/A**

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**7.0 Name(s) of any Intervening Systems providing transmission service: N/A**

**8.0 Service under this Agreement may be subject to some combination of the charges detailed below. (The appropriate charges for individual transactions will be determined in accordance with the terms and conditions of the Tariff.)**

**8.1 Transmission Charge:** \_\_\_\_\_  
\_\_\_\_\_

**8.2 System Impact and/or Facilities Study Charge(s):**  
\_\_\_\_\_  
\_\_\_\_\_

**8.3 Direct Assignment Facilities Charge:** \_\_\_\_\_  
\_\_\_\_\_

**8.4 Ancillary Services Charges:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ATTACHMENT A

Form Of Service Agreement For  
Firm Point-To-Point Transmission Service

- 1.0 This Service Agreement, dated as of ~~October~~ <sup>November 9</sup>, 1998, is entered into, by and between Big Rivers Electric Corporation (Big Rivers), and LG&E Energy Marketing Inc. ("Transmission Customer").
- 2.0 The Transmission Customer has been determined by Big Rivers to have a Completed Application for Firm Point-To-Point Transmission Service under the Tariff.
- 3.0 The Transmission Customer has provided to Big Rivers an Application deposit in the amount of \$ N/A, in accordance with the provisions of Section 17.3 of the Tariff.
- 4.0 Service under this agreement shall commence on the later of (1) the requested service commencement date August 1, 1998 or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as it is permitted to become effective by the Commission. Service under this agreement shall terminate on January 1, 2000 or such date as mutually agreed upon by the parties.
- 5.0 Big Rivers agrees to provide and the Transmission Customer agrees to take and pay for Firm Point-To-Point Transmission Service in accordance with the provisions of Part II of the Tariff and this Service Agreement.

6.0 Any notice or request made to or by either Party regarding this Service Agreement shall be made to the representative of the other Party as indicated below.

Transmission Provider:

Big Rivers Electric Corporation  
201 Third Street, P.O. Box 24  
Henderson, Kentucky 42420  
Telephone No. (502) 827-2561

Transmission Customer:

LG&E Energy Marketing Inc.  
220 W. Main Street, 7<sup>th</sup> Floor  
Louisville, KY 40241  
Telephone No. (502) 627-4276

7.0 The Tariff is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: Tom J. Hanby V.P. Sys. Op. 11-9-98  
Name TERVIS D. HOUSLEY Title Date

Transmission Customer:

By: D. [Signature] Director 10/30/98  
Name Title Unregulated Marketing Date

**Specifications For Long-Term Firm Point-To-Point  
Transmission Service**

**1.0 Term of Transaction: 8/1/1998- 12/31/1999**

**Start Date: 8/1/1998**

**Termination Date: 1/1/2000**

**2.0 Description of capacity and energy to be transmitted by Big Rivers including the electric Control Area in which the transaction originates.**

**Firm Capacity and Energy originating from BREC Control Area**

**3.0 Point(s) of Receipt: WKE**

**Delivering Party: LG&E Energy Marketing Inc.**

**4.0 Point(s) of Delivery: TVA**

**Receiving Party: OPC**

**5.0 Maximum amount of capacity and energy to be transmitted  
(Reserved Capacity): 105 MW**

**6.0 Designation of party(ies) subject to reciprocal service obligation:**

**N/A**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**7.0 Name(s) of any Intervening Systems providing transmission service: TVA**

**8.0 Service under this Agreement may be subject to some combination of the charges detailed below. (The appropriate charges for individual transactions will be determined in accordance with the terms and conditions of the Tariff.)**

**8.1 Transmission Charge:** \_\_\_\_\_  
\_\_\_\_\_

**8.2 System Impact and/or Facilities Study Charge(s):**  
\_\_\_\_\_  
\_\_\_\_\_

**8.3 Direct Assignment Facilities Charge:** \_\_\_\_\_  
\_\_\_\_\_

**8.4 Ancillary Services Charges:** \_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_  
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## ATTACHMENT A

Form Of Service Agreement For  
Firm Point-To-Point Transmission Service

- 1.0 This Service Agreement, dated as of ~~October~~ <sup>November 9</sup>, 1998, is entered into, by and between Big Rivers Electric Corporation (Big Rivers), and LG&E Energy Marketing Inc. ("Transmission Customer").
- 2.0 The Transmission Customer has been determined by Big Rivers to have a Completed Application for Firm Point-To-Point Transmission Service under the Tariff.
- 3.0 The Transmission Customer has provided to Big Rivers an Application deposit in the amount of \$ N/A, in accordance with the provisions of Section 17.3 of the Tariff.
- 4.0 Service under this agreement shall commence on the later of (1) the requested service commencement date August 1, 1998 or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as it is permitted to become effective by the Commission. Service under this agreement shall terminate on January 1, 2000 or such date as mutually agreed upon by the parties.
- 5.0 Big Rivers agrees to provide and the Transmission Customer agrees to take and pay for Firm Point-To-Point Transmission Service in accordance with the provisions of Part II of the Tariff and this Service Agreement.

6.0 Any notice or request made to or by either Party regarding this Service Agreement shall be made to the representative of the other Party as indicated below.

Transmission Provider:

Big Rivers Electric Corporation  
201 Third Street, P.O. Box 24  
Henderson, Kentucky 42420  
Telephone No. (502) 827-2561

Transmission Customer:

LG&E Energy Marketing Inc.  
220 W. Main Street, 7<sup>th</sup> Floor  
Louisville, KY 40241  
Telephone No. (502) 627-4276

7.0 The Tariff is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: Travis D. Housley VP Sys OPR 11-9-98  
Name TRAVIS D. HOUSLEY Title Date

Transmission Customer:

By: [Signature] Director 10/20/98  
Name Title Unregulated Date  
Marketing



**Specifications For Long-Term Firm Point-To-Point  
Transmission Service**

**1.0 Term of Transaction: 9/1/1998- 12/31/1999**

**Start Date: 9/1/1998**

**Termination Date: 1/1/2000**

**2.0 Description of capacity and energy to be transmitted by Big Rivers including the electric Control Area in which the transaction originates.**

**Firm Capacity and Energy originating from BREC Control Area**

**3.0 Point(s) of Receipt: WKE**

**Delivering Party: LG&E Energy Marketing Inc.**

**4.0 Point(s) of Delivery: TVA**

**Receiving Party: TVA**

**5.0 Maximum amount of capacity and energy to be transmitted (Reserved Capacity): 51 MW**

**6.0 Designation of party(ies) subject to reciprocal service obligation:  
N/A**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**7.0 Name(s) of any Intervening Systems providing transmission service: N/A**

**8.0 Service under this Agreement may be subject to some combination of the charges detailed below. (The appropriate charges for individual transactions will be determined in accordance with the terms and conditions of the Tariff.)**

**8.1 Transmission Charge:** \_\_\_\_\_  
\_\_\_\_\_

**8.2 System Impact and/or Facilities Study Charge(s):**  
\_\_\_\_\_  
\_\_\_\_\_

**8.3 Direct Assignment Facilities Charge:** \_\_\_\_\_  
\_\_\_\_\_

**8.4 Ancillary Services Charges:** \_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ATTACHMENT A**

**Form Of Service Agreement For  
Firm Point-To-Point Transmission Service**

- 1.0 This Service Agreement, dated as of April 2, 1999, is entered into, by and between Big Rivers Electric Corporation (Big Rivers), and Reliant Energy Services, Inc. ("Transmission Customer").
- 2.0 The Transmission Customer has been determined by Big Rivers to have a Completed Application for Firm Point-To-Point Transmission Service under the Tariff.
- 3.0 The Transmission Customer has provided to Big Rivers an Application deposit in the amount of \$50,150, in accordance with the provisions of Section 17.3 of the Tariff.
- 4.0 Service under this agreement shall commence on the later of (1) the requested service commencement date April 2, 1999, or (2) the date on which construction of any Direct Assignment Facilities and/or Network Upgrades are completed, or (3) such other date as it is permitted to become effective by the Commission. Service under this agreement shall terminate on such date as mutually agreed upon by the parties  

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- 5.0 Big Rivers agrees to provide and the Transmission Customer agrees to take and pay for Firm Point-To-Point Transmission Service in accordance with the provisions of Part II of the Tariff and this Service Agreement.

6.0 Any notice or request made to or by either Party regarding this Service Agreement shall be made to the representative of the other Party as indicated below.

Transmission Provider:

Big Rivers Electric Corporation:  
201 Third Street, P.O. Box 24  
Henderson, Kentucky 42420  
Telephone No. (502) 827-2561

Transmission Customer:

Reliant Energy Services, Inc.  
P.O. Box 4455  
Houston, Texas 77210-4455  
1111 Louisiana Street 9<sup>th</sup> Floor  
Houston, Texas 77002  
Telephone No. (713)207-1300  
Fax No. (713) 207-9562

7.0 The Tariff is incorporated herein and made a part hereof.

IN WITNESS WHEREOF, the Parties have caused this Service Agreement to be executed by their respective authorized officials.

Transmission Provider:

By: Travis J. Housley IP SYS OPR 4-20-99  
Name Title Date

Transmission Customer:

By: Jackie R. Thomas 4/19/99  
Name: Jackie R. Thomas Date  
VICE PRESIDENT, POWER MARKETING

Specifications For Long-Term Firm Point-To-Point  
Transmission Service

1.0 Term of Transaction: 16 Months, Oasis # 69281367

Start Date: 10/1/1999

Termination Date: 1/1/2001

2.0 Description of capacity and energy to be transmitted by Big Rivers including the electric Control Area in which the transaction originates.

Capacity: Yearly Firm Path: E/BREC/BREC - TVA//

3.0 Point(s) of Receipt: BREC

Delivering Party: Big Rivers

4.0 Point(s) of Delivery: TVA

Receiving Party: TVA

5.0 Maximum amount of capacity and energy to be transmitted (Reserved Capacity): 51MW

6.0 Designation of party(ies) subject to reciprocal service obligation: N/A

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





BIG RIVERS ELECTRIC CORPORATION  
 RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
 SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

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**Item 28)** Please provide Big Rivers' Total Transmission Capability (TTC), Firm Available Transmission Capability (Firm ATC), Non-Firm Available Transmission Capability (Non-Firm ATC), Capacity Benefit Margin (CBM) and Transmission Reliability Margin (TRM) for imports into the Big Rivers system from adjacent utilities on a monthly basis for the next five years to the extent these values are known. If not known, please provide Big Rivers' best estimate of these values.

**Response)** Big Rivers calculates and posts on its OASIS site import and export ATC values for only the next 12 months. For import values, an annual value is calculated and applied to all months. The ATC values provided here represent both firm and non-firm transmission import limits. The ATC values shown are non-simultaneous transfer limits per path.

PATH	*****TTC*****		CBM	TRM	ATC
	FLOW BASED	CONTRACT PATH			
Hoosier Energy to Big Rivers	768 MW	250 MW	62 MW	0 MW	188 MW
LGEE to Big Rivers	931 MW	754 MW	244 MW	0 MW	399 MW
SIGECO to Big Rivers	351 MW	224 MW	80 MW	0 MW	144 MW
SIPC to Big Rivers	1000 MW	290 MW	0 MW	0 MW	290 MW
TVA to Big Rivers	1000 MW	1000+ MW	0 MW	0 MW	433 MW

ATC import values for the four years beyond this 12-month period are likely to be similar to those shown.

**Witness)** David Crockett





BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

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**Item 29)** Please provide Big Rivers' monthly coincident peak loads for 1998.

**Response)** Big Rivers' monthly coincident peak loads for 1998 were provided in response Item 4, page 5, of Willamette's Initial Request for Information of October 7, 1999.

**Witness)** David Crockett



BIG RIVERS ELECTRIC CORPORATION  
RESPONSE TO WILLAMETTE INDUSTRIES, INC.'S  
SUPPLEMENTAL REQUEST FOR INFORMATION OF OCTOBER 28, 1999

CASE NO. 99-354

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4 **Item 30)** Please provide a brief narrative describing Big Rivers' method for  
5 determining the Capacity Benefit Margin (CBM) and Transmission Reliability Margin  
6 (TRM) components of its Available Transmission Capability calculations.

7  
8 **Response)** CBM is the amount of transmission transfer capability set aside to ensure  
9 access to generation resources from interconnected neighbor systems to meet operating  
10 reliability requirements. Big Rivers' CBM is the import quantity that maintains service  
11 reliability during an outage of the Wilson generating unit. This represents the outage of  
12 the largest generating unit in the Big Rivers' Control Area. To recover from this  
13 contingency outage, Big Rivers relies on the ECAR Automatic Reserve Sharing system  
14 (ARS). This ARS system allows Big Rivers as directed by LG&E Energy Marketing to  
15 immediately purchase the generation reserves of neighboring ECAR member systems to  
16 offset the generation loss. Thus, transmission capacity is set aside to provide for import  
17 of this level of ARS generation reserves distributed on the paths of the three neighboring  
18 ECAR members: Hoosier Energy, LG&E Energy, and SIGECO.

19  
20 TRM is the amount of transfer capability reserved and applied to both  
21 import and export limits to ensure that the transmission network is secure under a  
22 reasonable range of uncertainties in system operating conditions. Big Rivers' TRM  
23 applied to import ATC calculations is 0 megawatts. The rationale is that the CBM values  
24 applied to import ATC calculations will provide the reliability margins desired.

25  
26 **Witness)** David Crockett  
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