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February 21, 2017

VIA E-MAIL  
VIA U.S. MAIL

Ms. Katherine Collier  
Executive Secretary  
Mississippi Public Service Commission  
501 North West Street, Suite 201A  
Jackson, Mississippi 39201

Re: **Petition of Mississippi Power Company for a Certificate of Public Convenience and Necessity Authorizing the Acquisition, Construction, and Operation of an Electric Generating Plant, Associated Transmission Facilities, Associated Gas Pipeline Facilities, Associated Rights-of-Way, and Related Facilities in Kemper, Lauderdale, Clarke, and Jasper Counties, Mississippi**  
**Docket No. 2009-UA-014**

Dear Ms. Collier:

In the fourth quarter of 2016, as a part of its Integrated Resource Plan process, the Southern Company system completed its regular, annual updated fuel forecast, the 2017 Annual Fuel Forecast. This updated fuel forecast reflected significantly lower long-term estimated costs for natural gas than were previously projected. As a result of the Kemper Project's revised operating expense projections and the updated natural gas forecast, Mississippi Power Company (MPC) has updated its project Economic Viability Analysis of the Kemper Project as required under the Commission's Final Order on Remand approving the Kemper Project. Please find enclosed a copy of MPC's 2017 Economic Viability Analysis. I also enclose an extra copy of the first page of this filing, which I would appreciate your stamping with the filing date and returning to me in the enclosed self-addressed, stamped envelope.

Very truly yours,

BALCH & BINGHAM LLP

A handwritten signature in cursive script, appearing to read "Ben H. Stone".

for: Ben H. Stone

BHS: hr

Enclosure

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cc: Shawn Shurden, Esq.  
Mr. Virden Jones  
Chad Reynolds, Esq.  
Mr. Billy Thornton  
Mr. Stephen Stiglets  
Mr. Ben Vance

## 2017 Kemper Economic Viability Analysis

### Introduction

In the Mississippi Public Service Commission’s (MPSC) April 24, 2012 Final Order on Remand (Order), the MPSC states that “MPC has a continuing obligation to ensure that Kemper remains consistent with the public convenience and necessity, in light of feasible alternatives. MPCo shall therefore file with the Commission...at any other time that the facts require, a report that supports MPCo’s continuing conclusion that Kemper remains consistent with the public convenience and necessity.” In the fourth quarter of 2016, as a part of its Integrated Resource Plan (IRP) process, the Southern Company system completed its regular annual updated fuel forecast, the 2017 Annual Fuel Forecast. This updated fuel forecast reflected significantly lower long-term estimated costs for natural gas than were previously projected in the 2016 forecast. The updated long-term natural gas price forecast indicated lower sustained natural gas commodity price forecasts by 25-30% as compared to the 2016 forecast. In addition, Mississippi Power (Company) submitted revised operating expenses with the Mississippi PSC in the Discovery Docket filings (Docket No. 2016-AD-0161) on October 3, 2016 (supplemented on November 17, 2016) that identified further increases to the estimated operating expenses for the Kemper IGCC. The Company believes these fuel and operating expense updates meet the conditions necessary for the Company to update the economic viability analysis. Therefore, the Company submits the following economic viability analysis.

### Economic Viability Analysis

Similar to the economic viability analyses filed with the MPSC during the Kemper IGCC’s Certification process and in subsequent submittals, the Company has performed an analysis that measures the economics of the Kemper IGCC compared to feasible economic alternatives.

For this economic viability analysis, the Company has compared the Kemper IGCC to a natural gas combined cycle generating unit (NGCC) at the Company’s existing Plant Sweatt site, consistent with previous economic viability analysis submittals. In addition, the Company has compared the Kemper IGCC to the existing NGCC at Kemper.

This economic viability analysis utilizes inputs from the recent iteration of the Company’s IRP fuel forecast process completed in the fourth quarter 2016 and current Kemper IGCC information, including operating and capital costs and operating characteristics as well as federal and state taxes and incentives.

The Company cautions against drawing any particular conclusions from these studies. These studies are based on point in time estimates of long term future energy prices, which have varied over the evaluation and construction periods of the Kemper IGCC. It should be recalled that one of the fundamental favorable attributes of the Kemper IGCC was that it could mitigate against volatile natural gas prices by providing fuel diversity for customers. For this reason, the Company still believes the long-term high natural gas forecast plays a significant role in this analysis, particularly because the changes in natural gas prices impact the economic viability analysis results. Current estimates of long-term natural gas prices provide no more certainty in the actual long term price of natural gas prices than existed when the Kemper IGCC was certified. The Kemper IGCC is still expected to play an important role in mitigating any such upward trend in natural gas prices over its 40-year expected useful life.

### Assumptions

#### **Natural Gas Price Forecasts**

Consistent with the Company’s previous filings, analysis has been performed using a number of unique natural gas price forecasts that take into account supply, demand, global economic factors, and potential CO<sub>2</sub> emission cost impacts (\$/ton). For its current process, the Company established nine unique natural gas and carbon scenarios illustrated in Figure 1 below.

**Figure 1 – Natural Gas Price Scenarios**

	CO <sub>2</sub> Emissions Impact		
	\$0/ton	\$10/ton	\$20/ton
High Natural Gas			
Medium Natural Gas			
Low Natural Gas			

### **Operating and Maintenance Costs**

The economic viability analysis has been performed using the capital and non-fuel operations and maintenance (O&M) cost estimates included in the Company's revised operating expense projections reflected in the Discovery Docket filings in Exhibit \_\_\_\_ BCH-3. These estimates include the current projected level of capital and non-fuel O&M costs associated with major equipment maintenance, third party agreements, outage support, staffing, contract labor, environmental, and other costs. This economic viability analysis excludes the approximately \$68 million of additional estimated non-fuel O&M costs expected to be required to support the operations of the Kemper IGCC during the first year of operation, as the Company will not seek recovery of the additional estimated costs from customers if incurred.

### **Availability**

The economic viability analysis has been performed using the most recent operational availability estimates included in the Company's revised projections reflected in the Discovery Docket filings in Exhibit \_\_\_\_ BCH-1. While the current estimated operational availability estimates reflect mature operational availability results similar to those presented in the 2010 Certificate proceedings, the ramp up period for the current estimates reflects a lower starting point and a slower escalation rate.

### **Chemical Products Revenues**

The economic viability analysis has been performed using the Company's most recent projection for revenues from chemical product sales that is consistent with the Company's revised projection reflected in the Discovery Docket filing in Exhibit \_\_\_\_ BCH-2. The most recent chemical products revenue projections include transportation revenues, which were not contemplated in the certificate estimate.

### **Plant Costs**

The Kemper IGCC capital costs in the economic viability analysis exclude \$2.76 billion of costs in excess of the construction cost cap which have been charged to earnings by the Company.

## **Results**

The development of the Kemper IGCC began in 2006 and full construction commenced upon approval from the MPSC in June 2010.

The Company believes that all incurred costs to date have been prudently incurred, expended in the best interests of its customers, and, where applicable, must be reflected in the economic viability analysis. Approximately \$4.2 billion of committed costs, including \$2.88 billion subject to the MPSC's construction cost cap and \$1.5 billion of cost cap exceptions, net of \$137 million of additional DOE grants, have been reflected in the economic viability analysis.

The project economic viability analysis measures the life cycle economics of the Kemper IGCC compared to the closest economic alternatives, a new NGCC unit constructed at Plant Sweatt and the existing NGCC at Kemper.

The reduction in the projected long-term natural gas prices and the increase in the estimated Kemper IGCC operating costs negatively impact the economic viability analysis. The changes in the 2017 Annual Fuel Forecast impact the economic viability analysis results in a ratio of approximately 3 to 1 compared to the projected increases in non-fuel operating expenses as compared to the previously filed economic viability analysis.

### **Comparison of Kemper IGCC versus a NGCC at Plant Sweatt**

For the comparison between the Kemper IGCC and a NGCC at Plant Sweatt, Figure 2 illustrates that the Kemper IGCC is the more economic alternative in the high natural gas price scenarios, as the Kemper IGCC has a lower net present value of life cycle costs than the NGCC alternative in these scenarios. The economic viability analysis shows that the Plant Sweatt NGCC alternative is the more economic alternative in the medium and low natural gas price scenarios, as the Plant Sweatt NGCC alternative has a lower net present value of life cycle costs than the Kemper IGCC in these scenarios.

**Figure 2 – Economic Comparison of the Kemper IGCC vs. 2022 NGCC at Plant Sweatt  
(Millions of Dollars – 2016 NPV)**

	\$0/ton	\$10/ton	\$20/ton
High Natural Gas	(1,144)	(1,050)	(1,083)
Medium Natural Gas	93	107	78
Low Natural Gas	1,034	1,041	1,097

**Comparison of Kemper IGCC versus the existing Kemper NGCC**

The Company has also performed an economic viability analysis that measures the life cycle economics of the Kemper IGCC compared to operating the existing Kemper in-service assets using only natural gas.

The Company believes that all incurred costs to date have been prudently incurred, expended in the best interests of its customers, and, where applicable, must be reflected in the economic viability analysis.

As Figure 3 illustrates, the economic viability analysis shows that the Kemper IGCC is the more economic alternative in the high natural gas price scenarios, as the Kemper IGCC has a lower net present value of life cycle costs than the Kemper NGCC alternative in these scenarios. The economic viability analysis shows that the Kemper NGCC alternative is the more economic alternative in the medium and low natural gas price scenarios, as the Kemper NGCC alternative has a lower net present value of life cycle costs than the Kemper IGCC in these scenarios.

**Figure 3 – Economic Comparison of the Kemper IGCC vs. NGCC at Kemper  
(Millions of Dollars – 2016 NPV)**

	\$0/ton	\$10/ton	\$20/ton
High Natural Gas	(806)	(726)	(781)
Medium Natural Gas	619	578	595
Low Natural Gas	1,710	1,774	1,883

**Historical Comparison of Economic Viability Analyses**

Figure 4 illustrates the results of all of the Kemper IGCC economic analysis submittals, including those filed during the Kemper IGCC’s Certification process and in subsequent submittals.

**Figure 4 – Comparison of the Kemper IGCC Economic Viability Analysis Submittals**

Study Year	Scenarios Favoring Kemper IGCC
2010 (Certification)	12 of 16
2011	8 of 12
2012	9 of 9
2013	9 of 9
2014	12 of 12
2015	9 of 9
2017	3 of 9