

January 27, 2010

VIA ELECTRONIC MAIL

Mr. Brian U. Ray
Executive Secretary
Mississippi Public Service Commission
501 North West Street, Suite 201A
Jackson, Mississippi 39201

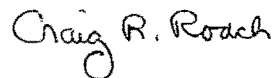
Re: Petition of Mississippi Power Company for a Certificate of Public Convenience and Necessity Authorizing the Acquisition, Construction, and Operation of an Electric Generating Plant, Associated Transmission Facilities, Associated Gas Pipeline Facilities, Associated Rights-of-Way, and Related Facilities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

Dear Mr. Ray,

I hereby submit Boston Pacific's **Redacted Public** version of the Independent Evaluator Report in the above referenced docket. This version of the report redacts all confidential and proprietary information from the actual report.

Please do not hesitate to contact me with any questions you may have.

Sincerely,



Craig R. Roach

Enclosure

Cc: All Parties of Record

REPORT OF THE INDEPENDENT EVALUATOR
IN DOCKET NO.
2009-UA-0014

PRESENTED TO
THE MISSISSIPPI PUBLIC SERVICE COMMISSION

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CHAPTER ONE: INTRODUCTION AND SUMMARY

A. INTRODUCTION

1. The Resource Options being Evaluated

The important context for this report is the Mississippi Public Service Commission's (the "Commission's") proceeding for consideration of Mississippi Power Company's ("MPCo") application for a Certificate of Public Convenience and Necessity for its proposed Kemper County Integrated Gasification Combined Cycle facility ("Kemper"). Kemper would gasify Mississippi lignite and use that synthetic gas as the fuel to produce electricity in a conventional combined cycle power plant. Importantly, Kemper also would capture carbon dioxide as part of the gasification process and, in the end, put it in permanent, underground storage – this is termed carbon capture and sequestration.¹

To be sure that it finds the best deal possible for Mississippi ratepayers, the Commission invited independent parties to submit credible, detailed proposals in this proceeding as alternatives to Kemper. Three independent Bidders responded to the Commission's invitation:

[REDACTED]

In total, these three Bidders submitted Bids which varied by the power plant that would generate the power, the transaction type, and natural gas supply arrangements.

All of the Bids would use natural gas to produce electricity in a conventional combined cycle power plant. Power is offered from six different power plants in six different Southeastern States. Five of the six are fully built and have been in operation for several years, one is partially built. Transaction types include (a) power purchase agreements (PPA) in which the Bidder sells power under a contract to MPCo, (b) tolling agreements in which the Bidder makes the power plant available under contract for MPCo to generate power with natural gas MPCo procures and brings to the Bidder's plant, and (c) asset purchase and sales agreement (APSA) in which MPCo would buy the power plant from the Bidder and operate it thereafter.

Two of the three Bidders brought indicative offers for fixed-price natural gas supply for ten years. The Commission had stated its strong interest in fixed-price natural gas supply to protect Mississippi ratepayers against price volatility.

¹ In simple terms, MPCo plans to capture carbon dioxide and then compress it for transport by pipeline. The compressed carbon dioxide would be sold for use in enhanced oil recovery – it would be injected into oil wells to help heavier oil to flow to the surface and the carbon dioxide is assumed to remain underground.

2. Evaluation Methods

Boston Pacific Company, Inc. serves the Commission as its Independent Evaluator. In that role we conducted an independent evaluation of the cost and performance of Kemper as compared to the cost and performance offered by the three, independent Bidders' existing natural gas-fired combined cycle power plants. Boston Pacific coordinated closely with MPCo's Bid Evaluation Team on inputs and methods for the evaluation. The purpose here is to report on our evaluation.

It was clear that the Commission would face considerable uncertainty when making the choice among these resource options. The two primary uncertainties were thought to be the path natural gas prices would take in the coming years – prices have been especially volatile in recent times – and the price on carbon dioxide emissions that would result from possible global climate legislation being considered by the U.S. Congress. To address these uncertainties, the Commission ordered that the comparison of Kemper and the independent Bids be done under twenty different expectations about or *scenarios* for the future.² The twenty scenarios were created by combining five different natural gas price forecasts with four different views on the likely price for carbon dioxide emissions. The cost and performance comparisons herein are provided for these 20 scenarios.

Boston Pacific's evaluation also took account of another prominent uncertainty – how much it will cost to build Kemper. The three Bidders, since their facilities were already built, offered fixed capacity prices for the PPAs and tolling agreements so capital cost risk was not an issue for them.

The comparison includes all of the direct costs of Kemper and the independent combined cycle Bids. Direct costs include all capital-related costs, fuel costs, all other non-fuel operating costs, and the assumed cost for carbon dioxide emission permits (allowances). The evaluation of Kemper also reflects all of the financing and tax incentives available from the Federal Government as well as incentives from State and Local Governments. In addition, the Kemper evaluation reflects the sales revenue from sales of byproducts, including captured carbon dioxide – these offset and, thereby, lower the cost of Kemper.

Boston Pacific believes the cost and performance comparison must be done in a way that allows the Commission to see the effect and the cost of what we will term *strategic preferences*. One of the most important strategic preferences is the choice between shorter-term and longer-term solutions and commitments. MPCo is offering Kemper as a very long-

² Mississippi Public Service Commission, Docket No. 2009-UA-14, "Order Finding Need for Generating Capacity and Energy", November 9, 2009 and Mississippi Public Service Commission, Docket No. 2009-UA-014, "Order Granting Motions for Reconsideration", December 15, 2009.

term solution and commitment – MPCo asserts that it will last for forty years. In contrast, the Bidders with natural gas-fired combined cycle plants are offering terms of mostly ten and twenty years. These shorter terms are consistent with the popularized view of natural gas as a “bridge” to the future – that is, it will serve America’s energy needs for ten or twenty years as new technologies are developed and perfected. A challenge comes when deciding how to fairly compare short and long-term offers. Two methods are used herein – each with its own pros and cons – (a) the Annuity Method and (b) the Extension Method. A third method, the Fill-In Method is used by MPCo and we discuss that here, too.

Other strategic preferences that should be accommodated include preferences for (a) fixed natural gas price offers rather than making daily purchases of natural gas at varying prices, (b) for asset ownership rather than power purchases through a power sales or tolling agreement, and (c) location in Mississippi rather than an out-of-state location.

In these cost comparisons there also can be asserted indirect costs which are often of three types. The first type is system effects in the form of changes in the cost of other power plants on the MPCo system due to the addition of a new resource. The second type is a cost incurred to assure the reliable delivery of power – these can include firm electric transmission charges if the power plant is outside Southern’s service territory and/or the cost of transmission system upgrades within the Southern Company service area. The third type is a cost that can be characterized as balance sheet impacts for any of the resource alternatives.

B. SUMMARY OF EVALUATION RESULTS

The Commission did the right thing in inviting competitors to submit alternatives to Kemper -- this is the way to shop around to assure the best deal for Mississippi ratepayers. We anticipated that the competition would come down to two technologies: (a) Kemper’s technology which gasifies Mississippi lignite and then produces electricity in a combined cycle power plant versus (b) the traditional technology which uses natural gas to produce electricity in a combined cycle power plant. That is what we anticipated and that is what we got – all the Bidders produce electricity with traditional combined cycle power plants and five of the six powers plant are already built and in operation.

The Commission also did the right thing when it required the comparison of Kemper and the Bids to be done in 20 different scenarios. The use of scenarios is a good way to measure risks. We would tend to pick the option that wins a majority or more of the scenarios because it means that the option is the best deal for Mississippi ratepayers no matter how the future unfolds.

Who wins this competition – who wins the right to sell power to Mississippi ratepayers – is influenced importantly by what we have termed strategic preferences. The threshold

strategic question is “What time horizon does the Commission want to consider?” The Commission has been offered primarily ten- and twenty-year resource options or solutions by the Bidders, but Kemper is offered as a forty-year option. There is no analytic or business reason to require all options to offer a forty-year solution. The proper time horizon is a matter for the Commission to decide.

1. Ten-Year Time Horizon

If a ten-year option or solution is acceptable, and the Commission has no other strategic preferences, then there is a clear winner according to our evaluation. [REDACTED] offers a ten-year tolling agreement and has attached to it [REDACTED]. This [REDACTED] Bid wins in every one of the 20 scenarios the Commission asked to be assessed. [Please see Table E-1 in Appendix E.] The [REDACTED] Bid has a margin of victory over Kemper ranging from 14.2% to 21.8%. These are cost savings of the [REDACTED] Bid as compared to the first ten years of the Kemper offer.³

For the [REDACTED] offer to be a clear winner the Commission must also find the [REDACTED] fixed- price natural gas supply offer to be credible. Without the [REDACTED] deal, [REDACTED] would win only 9 of the 20 scenarios – all of them in the two lower-end natural gas price forecasts. Kemper would win the other 11 scenarios. The margin of victory narrows, too. For example, [REDACTED] wins under the Low Natural Gas Price Forecast by a margin of 4.2% to 8.2%. Kemper wins under the Moderate Natural Gas Price Scenario by a margin of 0.1% to 3.8%. The point is that the competition is neck-and-neck. [Please see Table E-2]

2. Twenty-Year Time Horizon

The Commission may have other strategic preferences that lead to another winner. To start, assume that the Commission does not want just a ten-year solution, but would prefer a minimum of a twenty-year offer. In addition, assume it prefers a power plant that is located in Mississippi. With just these two additional strategic preferences, the competition is narrowed significantly – it is Kemper versus the offers by [REDACTED]. The [REDACTED] offers also have associated with them [REDACTED]. [Note that [REDACTED] is a consistent winner with other strategic preferences.]

In the head-to-head competition of Kemper and [REDACTED] wins 11 of the 20 scenarios. Its margin of victory ranges from a low of 0.6% to a high of 15.8%. Most of the 9

³ Note that the Kemper capital revenue requirement is levelized for this comparison which means its charges to ratepayers in the first ten years are allowed to be much lower than they actually would be under traditional rate regulation with its front-loaded charges.

scenarios in which Kemper wins reflect the higher-end natural gas price forecasts, and it wins with margins of victory ranging from 1.5% to 12.5%. [Please see Table E-7]

These victories for Kemper over ██████████, however, are quite sensitive to cost assumptions for Kemper. If Kemper is assumed to incur capital costs which are just 10% higher than estimated, ██████████ now wins 16 of the 20 scenarios with a margin of victory ranging from 2.0% to 21.3%. [Please see Table E-19] If Kemper is assumed to suffer a 20% capital cost overrun, ██████████ wins in all of the 20 scenarios with a margin of victory ranging from 0.7% to 26.1%. [Please see Table E-20]

Because of this sensitivity of the results to assumptions about capital cost overruns at Kemper, if the Commission chooses Kemper, we strongly recommend that Mississippi ratepayers be protected from this risk by requiring pay-for-performance features in Kemper's cost recovery rules. These features can be modeled on the pay-for-performance features MPCo required from the Bidders in its Model Power Purchase and Tolling Agreements.⁴ The primary feature would be to set a cap on capital cost recovery based on the Kemper installed cost estimate used by MPCo in this proceeding; capital cost recovery should also be tied to successful plant performance as measured by plant availability. In addition, we would suggest pay-for-performance features for lignite costs, for non-fuel operations and maintenance costs, for byproduct sales revenue and for carbon capture. These pay-for-performance features are simply a way to hold MPCo accountable for the cost estimates MPCo itself proffered, and that the Commission relied upon to make its decision in this proceeding.

3. Forty-Year Time Horizon

In the discussion of the ██████████ Bid and the ██████████ Bid above we assumed the Commission would accept a ten- or twenty-year solution. To reflect this strategic preference to allow shorter-term offers we used our Modified Annuity Method for purposes of comparing the Bids to Kemper; put simply, with this method, if a Bid had lower costs than Kemper in, say, the first twenty years, we concluded that the Bid beat Kemper and we did not worry about what happens in the next twenty years of Kemper's forty-year life. If, instead, the Commission wants a forty-year solution, then the cost comparison changes and Kemper wins consistently. To reflect this forty-year time horizon, we used the Extension Method for our cost comparison. For example, if a Bid offered a twenty-year deal, we simply extended that for another twenty years to make it fit the forty-year time horizon. Kemper wins more often with the forty-year time horizon because the natural gas prices out in those years are quite high and that drives up the cost of any of the Bids.

⁴ Mississippi Public Service Commission, Docket No. 09-UA-14, Mississippi Power Company's Notice of Filing of Pro Forma Power Purchase Agreement, Attachments E and F (December 2, 2009), and Mississippi Public Service Commission, Docket No. 09-UA-14, Boston Pacific Company's Phase Two Direct Testimony, Section 2, (December 7, 2009).

With the forty-year time horizon, Kemper consistently wins 16 of the 20 scenarios with Base Case assumptions. For example, with the strategic preference for power plants located in Mississippi, Kemper wins in 16 of the 20 scenarios. In the 16 scenarios (all using one of MPCo's natural gas price forecasts), the margin of victory ranged from a low of 0.5% to a high of 25.2%. [Please see Table E-14]

However, while the choice of a forty-year time horizon shows Kemper winning substantially, the results are still sensitive to capital cost overruns at Kemper. For example, with an assumed 20% capital cost overrun at Kemper and the strategic preference for Mississippi plants, [REDACTED] wins 12 of the scenarios and its margin of victory ranges from 0.5% to 20.4%. [Please see Table E-22] Again, because of this, we strongly recommend that pay-for-performance features be part of the cost recovery rules for Kemper.

4. Conclusions

Again, as detailed above, the answer to the question "Who Wins?" in the competition between Kemper and the Bidders depends on the Commission's strategic preferences. The most important of these is the choice of time horizon. While we have not reviewed MPCo's final report on its Bid evaluation, we expect to agree substantially on who wins given stated strategic preferences.

The answer also depends importantly on the credibility of the price offers: For the Bidders, judgments must be made on the credibility or definitiveness of the fixed price offers – credibility here would mean concluding a contract; for Kemper, judgments must be made on the credibility or definitiveness of the full range of cost and performance estimates – credibility for Kemper would mean MPCo is prepared to stand by those estimates for the purpose of cost recovery.

We look forward to being of service during the upcoming hearing.

CHAPTER TWO: [REDACTED]

CHAPTER THREE: [REDACTED]

CHAPTER FOUR: HEAD-TO-HEAD COMPARISONS OF COSTS AND PERFORMANCE

As already noted, the Commission's invitation to submit resource options brought a good response. We had anticipated that the primary alternative to the Kemper IGCC proposal would be natural gas-fired combined cycle plants and that turned out to be true. Three separate Bidders submitted Bids based on natural gas combined cycle plants. Five of the six plants are already built and in operation, the other one is partially completed.

The Bids varied by length of term with ten-, twenty-, and twenty-five-year terms being offered. The offers also varied by whether any fixed price natural gas supply was indicated – two of the three Bidders offered indicative, ten-year fixed price offers. And they varied by location – the six power plants are located in six different Southeastern States. Finally, the offers varied by the type of transaction – tolling services agreement (TSA), power purchase agreement (PPA), or asset purchase and sale (APSA).

Table D-1 in Appendix D displays all this information for all seventeen Bids and gives the name of the Bidder. However, to maintain confidentiality in this Chapter we will refer to the Bids only by an assigned number between 1 and 17.

A. BID EVALUATION METHODS AND ISSUES

The goal of Bid evaluation is to get the best deal possible for Mississippi ratepayers. The fact that there are uncertainties about the future makes this a challenge. The three primary uncertainties for the near- and long-term future concern (a) the forecast of natural gas prices, (b) the nature and cost of global climate change regulation, and (c) the expected cost of building new power plants especially if, as is true with the Kemper IGCC, the technology has not been fully commercialized.

The Commission directly addresses the first two of these uncertainties with its requirement that the comparison of costs and performance be done over twenty different scenarios – created by five different natural gas price forecasts and four different assumptions about the cost of carbon dioxide emission allowances. The third risk is substantial for only the Kemper IGCC since the Bidders offered fixed capacity prices – reflecting the fact the power plants have already been built.

Another element of the Bids that makes it challenging to find the best deal for Mississippi ratepayers is that the term length of the proposed resource options varies from as low as ten years (for the Bids) to as high as forty years (for Kemper IGCC). The challenge is to

fairly compare resource options of unequal lives. There are three primary ways to do this and we call them (a) the Annuity Method, (b) the Extension Method, and (c) Fill-In Method.

The Annuity Method is widely discussed in standard financial textbooks since choosing among investments that have unequal lives is a common issue in most businesses. The textbooks say that, if a business must choose between Alternative A which lasts ten years and Alternative B which lasts twenty years, the way to go about this is to calculate a cost *annuity* for the two alternatives. Put simply, an annuity is the average cost over the ten or twenty-years. (Stated more technically, an annuity is a financial average in the sense that the annuity is the equal annual payment over the life of the alternative which has the same present value as the actual, unequal costs that are expected to be incurred each year.)

It is important to see that the annuity for the ten-year alternative would be calculated over ten years and the annuity for the twenty-year alternative would be calculated over twenty years. The alternative with the lower cost annuity over its term is the better choice according to the textbooks.

Central to the comparison of investments of unequal lives is the question of what happens when the shorter-term option expires. Technically (or mathematically) the Annuity Method presumes the initial offer is repeated. On a more practical level, the Annuity Method could be characterized as ignoring what happens after the shorter-term investment expires. Put another way, the Annuity Method says, if the average cost over the ten-year offer is lower than the average cost over the twenty-year offer, take the cheaper deal. That is, lock in the early-year savings and worry later about what comes next.

It is this more practical level thinking that we reflect herein in what we term the *Modified Annuity Method*. If we say, for example, that a ten-year offer from a Bidder is lower cost than Kemper, we are comparing the average cost of that Bid over ten years to the average cost of Kemper over that same ten years. Moreover, to calculate the cost over the first ten years of Kemper we ARE NOT taking the actual frontloaded capital revenue requirement, but, rather, we are taking a capital revenue requirement levelized over the full forty years of life assumed for Kemper.

The Extension Method also will be used and discussed in this Chapter. The Extension Method takes a different tack to answering the question of what happens after the shorter-term option expires. With the Extension Method, the Bid is literally extended by the offered terms. For example, if the offered capacity price is \$100 per kW-year in 2014 then escalating at 2% per year thereafter, we extended the offer by allowing the 2% escalation to continue over the full forty-years assumed for Kemper. For natural gas fuel costs, to extend the offer to forty years we use the same heat rates offered in the Bid and then use the natural gas price forecast as called for by a scenario.

It is crucial to see the fundamental difference between (a) the Modified Annuity Method on the one hand and (b) the Extension Method (and the Fill-In Method used by MPCo and

discussed in the next Chapter) on the other hand. The fundamental difference is that the Modified Annuity Method does not require the Bids to be assessed over forty years which means that it does not reflect the very high natural gas prices forecasted in the later years of that period. Stated another way, it lets natural gas be what people say it is – a mid-term (ten- or twenty-year) *bridge* for America to a future time with new technologies.

MPCo uses a forty-year time horizon and that makes Kemper look cheaper as compared to the other alternatives – again, the reason is that it leads us to use the very high natural gas prices in the later years. The Commission is not required to assess the resource options over a forty-year time horizon. Indeed, as we will see in the results presented in this Chapter, the Commission’s choice of a time horizon – ten or twenty years on the one hand and forty on the other – has a lot to do with which option is said to offer the best deal to Mississippi ratepayers.

B. BASE CASE RESULTS FOR THE MODIFIED ANNUITY METHOD

Tables E-1 through E-7 of Appendix E display the results for the Modified Annuity Method using the Base Case assumptions. These are the Base Case Assumptions for Kemper IGCC and the independent combined cycle Bids presented in the two previous Chapters of the Report. This includes the full range of assumptions on the cost and performance of both Kemper and each of the seventeen Bids. We encourage the reader to pull out all the Tables in Appendix E so you can follow along with the discussion in the text which follows.

The one substantial assumption not discussed earlier for the independent Bids is capacity factor. In the spirit of head-to-head cost comparisons, we assume for the Base Case that all the Bids are run as base load facilities – specifically, we assume a 90% capacity factor. This makes it a head-to-head cost comparison because Kemper is proposed as a base load power plant – that is, a power plant which runs around the clock whenever it is available. Note that Kemper IGCC is assumed to be run any time it is available according to MPCo’s assumptions – recall that MPCO assumes an eight-year ramp up on availability.

As we noted in the Introduction to this Report, the Commission may have strategic preferences that it wants to reflect in its choice of resource option. In addition, the Company has raised concerns with at least three elements of the Bids: (a) the fixed natural gas price offers; (b) the acceptance of shorter terms; and (c) the pursuit of asset purchases. We illustrate the effect of Commission strategic preferences and MPCo concerns in this section.

1. No Strategic Preferences

We will start with the assumption that the Commission has no strategic preferences with respect to the length of term offered, the type of transaction, the location of the power plant, etc. As required by the Commission, all the resource options were compared in 20 different scenarios in which natural gas prices and the cost of CO₂ allowances were varied. In the Tables presenting results herein the winning resource option in each scenario is identified in the top half of each cell as either a Bid Number or Kemper.

As can be seen in the Table E-1, when it is assumed that there are no strategic preferences, Bid 17 is the winning proposal (the lowest cost resource option) in 16 of the 20 scenarios. Bid 17 is for a ten-year tolling agreement and our assessment of Bid 17 reflects the indicative ten-year, fixed price gas supply agreement that was provided with the Bid.

The only other winner is Bid 14 and it wins only in the Commission-specified Low Gas Price scenario. Actually, Bid 14 is the same as Bid 17 with one exception – it does not use the indicative, fixed-price natural gas supply deal. This reflects the fact that the Commission-specified Low Gas Price forecast has gas prices which are lower than those offered in the two fixed-price deals.

Beyond identifying the winner in each scenario, there is additional important information provided in each of the 20 cells of the Table. In each cell we also provide (a) the cost of the winning option in dollars per MWh – this is the cost annuity over the term of the offer and (b) the margin of victory over Kemper, if a Bid wins, or the margin of victory for Kemper over the best Bid, if Kemper wins.

For example, take the scenario (the cell) in Table E-1 defined by MPCo's Moderate Natural Gas Price Forecast and a \$10 CO₂ Allowance Price. The information in that cell tells us that (a) Bid 17 won the competition against all the other Bids as well as against Kemper, (b) the average price of Bid 17 over its ten-year term was [REDACTED], and (c) its average price was 16.1% lower than the average cost of the Kemper IGCC over that same ten years. Again, the Kemper cost IS NOT the actual frontloaded cost, but, rather, it reflects capital costs which have been levelized over forty years. (Note that, because a ten-year fixed gas price supply is assumed, the annuity price does not vary for any one Bid across the various natural gas price scenarios.)

Looking across the Table as a whole, in the 16 scenarios in which Bid 17 wins, its margin of victory over Kemper is in the range of 14.2% to 17.1%.

2. Strategic Preference to Exclude Fixed Gas Price Offers

Table E-2 displays the results if we impose a strategic preference in which the fixed gas price offers are excluded; MPCo has raised concerns about the ability to actually close on these indicative offers. This shows how important the fixed-price natural gas supply offers are to the victory for the power plant behind Bid 17 and Bid 14. Now, without the fixed-price natural gas,

Kemper wins 11 of the 20 scenarios. Its margin of victory ranges for a low of 0.1% to a high of 24.1%.

All of Kemper's victories are in the 3 higher-end natural gas price forecasts. The other nine scenarios are won by Bid 14 and all of these are in the two lower-end natural gas price forecasts. The margin of victory for Bid 14 ranges from a low of 0.5% to a high of 21.8%.

3. Strategic Preference for an Offer of Twenty or More Years

Table E-3 displays the results when we add a strategic preference for a twenty-year or longer option – this means all the ten-year offers are excluded from consideration. Given that strategic preference, Kemper wins only 9 of the 20 scenarios. As expected Kemper's victories are all in the 3 higher natural gas price scenarios. The margin of victory in those scenarios ranges from 1.5% to 12.5%.

The winners in the other 11 scenarios are two related Bids – Bid 1 and Bid 2. Both Bids are for the same power plant and both offer a PPA or tolling agreement. The only difference is that Bid 2 reflects the benefit of the indicative, fixed-price gas supply offer, while Bid 1 does not. The margin of victory for Bids 1 and 2 ranges from 0.6% to 15.8%. This margin of victory is lower on average than in Table E-1 due to the exclusion of ten-year proposals. This reveals what will be a recurring theme in the evaluation: on a longer time horizon, Bids are exposed to higher prices of natural gas and are disadvantaged relative to Kemper in the results.

4. Strategic Preference for a Twenty-Year Term or Longer and Exclusion of Fixed Price Gas Offers

Table E-4 displays the results with another strategic preference – offers must be for twenty-years or more *and* the fixed-price natural gas supply offers are excluded. With these strategic preferences, Kemper wins in 14 of the 20 scenarios. Its margin of victory ranges from a low of 2.3% to a high of 32.5%.

For the other 6 scenarios, Bid 1 wins – 4 of these victories are in the Commission's Low Natural Gas Price Scenario, and 2 are in the MPCo Low Natural Gas Price Scenario.

5. Strategic Preference for MPCo Asset Ownership

Table E-5 displays the results with the assumed strategic preference for MPCo asset ownership. This limits the Bids to those offering an asset sale. Note that all assets sales are evaluated as if the power plant had twenty years of remaining life. Kemper wins in 11 of the 20

scenarios with this strategic preference for asset ownership. The margin of victory ranges from 0.4% to 14.8%.

Bid 15 and 16 win the other 9 scenarios. These two Bids are asset sale offers for the same power plant. The only difference is that Bid 16 reflects the indicative, fixed price gas supply offer, and Bid 15 does not.

6. Strategic Preference for Twenty-Year or Longer Term and Excluding Asset Sales

Table E-6 displays the results reflecting a preference for an offer of twenty years or more and for exclusion of all assets sales. That means only PPAs and TSAs compete against Kemper. Kemper wins only 9 of the 20 scenarios. Kemper's victories are all in scenarios with the three higher-end natural gas price forecasts. The margin of victory ranges from a low of 1.5% to a high 12.5%.

Bids 1 and 2 win the other 11 scenarios. Both of these Bids are for the same power plant. The victories for the Bids are in scenarios with the three lower natural gas price forecasts. Their margins of victory range from 0.6% to 15.8%.

7. Strategic Preference for Mississippi Location

Table E-7 displays the results reflecting a strategic preference for the power plant to be located in Mississippi. Note that while these plants are in the State of Mississippi, they are not in MPCo's service territory, and neither is Kemper. With this strategic preference, Kemper wins only 9 of the 20 scenarios. Its margin of victory ranges from a low of 1.5% to a high of 12.5%. All 9 of the Kemper victories are in scenarios with the three higher-end natural gas price scenarios.

The other 11 scenarios are won by Bid 1 and Bid 2 – PPA or tolling offers for the same power plant. The only difference between the two Bids is that Bid 2 reflects the indicative, fixed-price natural gas supply offer, and Bid 1 does not. The margins of victory range from 0.6% to 15.8%.

C. BASE CASE RESULTS FOR THE EXTENSION METHOD

The purpose of this section is to show the impact of one of two ways of requiring the Bids to be assessed over a forty-year period. Recall that the two ways or methods to do this are termed the Extension Method and the Fill-In Method. Here we discuss the Extension Method.

Recall, too, that the Extension Method can be taken literally – what we do is to take shorter-term offers (ten- and twenty-year offers) and just extend the offered deal for an

additional twenty to thirty years into the future. Since this forces the Bids to be assessed as if they must last for forty years, the major impact is obvious – the Kemper proposal starts to win more often because the very high natural gas prices projected for the latter half of the forecast make the gas-fired combined cycle facilities look much more expensive.

Tables E-8 through E-14 in Appendix E show the same seven assessments that we showed for the Modified Annuity Method – the change being that we now use the Extension Method. The result of forcing the forty-year analysis is just about the same for all seven Tables so we need discuss only the first one to get the idea.

Table E-8 shows the results – the winning proposals -- under all 20 scenarios when we use Base Case assumptions, but require the forty-year analysis of the Extension Method. The expected effect is seen clearly here – the Kemper IGCC proposal wins in 16 of the 20 scenarios. In the 16 scenarios in which Kemper wins, its margin of victory ranges from a low of 0.5% to a high of 25.2%.

For example, looking at the scenario with MPCo's Moderate Natural Gas Price Forecast and a \$10 CO₂ Allowance Price, we see that Kemper is the winner; its average cost over the forty years (its annuity cost over forty years) is [REDACTED]; and its cost annuity beats the most competitive Bid by 8.1%. Bid 1 wins the other 4 scenarios with a margin of victory ranging from 4.1% to 10%.

In the next six Tables showing the effect of the Extension Method – that is, the effect of requiring a forty-year time horizon – Kemper, again, wins 16 of the 20 scenarios in every table.

D. RESULTS WITH ALTERNATIVE ASSUMPTIONS

As the Commission ordered, we already have taken account of uncertainties concerning the forecast of natural gas prices and the cost of CO₂ allowances. Here we assess primarily the effect on the results of uncertainty over the capital cost of the Kemper IGCC facility.

1. Capital Cost Uncertainty for Kemper

To show the effect of capital cost uncertainty for Kemper, we re-run the cost comparisons for selected strategic preferences for both the Modified Annuity Method and the Extension Method. We look at two of the strategic preferences cases we assessed above – the one with no strategic preferences and the one with a strategic preference for Mississippi plants only. In each, we test the effect on the results of a 10% and a 20% assumed capital cost overrun at Kemper.

a. No strategic Preferences

In Table E-15, we see the results for the Modified Annuity Method with no strategic preferences. Recall back in Table E-1 that two Bids from the same power plant (Bid 14 and Bid 17) won all 20 scenarios. With Kemper assumed to cost even more because of the assumed 10% capital cost overrun, we, of course, get the same result. The point is to see by how much the margin of victory increases. Recall that in Table E-1, Bid 17 won 16 of the 20 scenarios and its margin of victory ranged from 14.2% to 17.1%. Now, with the 10% capital cost overrun assumed for Kemper, that margin of victory for Bid 17 grows to a range of 19.4% to 23%. With the 20% assumed cost overrun, in Table E-16, the margin of victory for Bid 17 increases to a range of 24% to 28.1%.

In Tables E-17 and E-18, we test the same 10% and 20% capital cost overruns, but we use the Extension Method for the analysis. Recall that with the Extension Method and no strategic preferences, in Table E-8, Kemper won in 16 of 20 scenarios. As expected, the capital cost overruns mean that Kemper wins in fewer scenarios. With the 10% capital cost overrun in Table E-17, Kemper wins 13 (instead of 16) of the scenarios; Kemper loses only in the low natural gas price scenarios. With the 20% capital cost overrun in Table E-18, Kemper wins only 8 (instead of 16) of the 20 scenarios. Kemper's margin of victory ranges from 0.3% to 14.2%.

b. Strategic Preference for Plants Located in Mississippi

We now show the effect of the assumed capital cost overruns on the cases with a strategic preference for power plants located in Mississippi. Recall that back in Table E-7 with the Modified Annuity Method and a strategic preference for plants located in Mississippi, Kemper won 9 of the 20 scenarios. The same power plant backing Bids 1 and 2 won in the other 11 scenarios. Recall, too, that we noted how close the margin of victory was in the Moderate Natural Gas price forecasts – the margin of victory for Bid 2 in the 3 scenarios it won ranged from 0.6% to 2.6% and the margin of victory for Kemper in the remaining scenario was 1.5%.

In Table E-19 we see that the 10% capital cost overrun results in Bids 1 and 2 winning much more often – in 16 of the 20 scenarios. And the margin of victory for Bid 1 in the Commission's Low and MPCo's Low natural gas price cases increases to a range of 16% to 21.3% and Bid 2 wins in the remaining cases by 2% to 12%.

In Table E-20 we see that the 20% capital cost overrun results in Bids 1 and 2 winning all of the 20 scenarios, and the margin of victory for Bids 1 and 2 increases. Again, let's look at the margin of victory in the Commission's Low and MPCo's Moderate natural gas price forecasts. Bid 1 wins in the Commission's Low case by a margin ranging from 20.5% to 26.1% and Bid 2 wins in the Moderate case by a margin of 11.3% to 13.9%.

We now turn to the results using the Extension Method. Looking back at Table E-14, we see that using the Extension Method and a strategic preference for plants in Mississippi led to Kemper winning in 16 of the 20 scenarios. Now with an assumed 10% capital cost overrun,

Table E-21 shows that Kemper wins in 13 of the 20 scenarios. And in Table E-22, with an assumed 20% capital cost overrun, Kemper wins only 8 of the 20 scenarios. So, even relatively small capital cost overruns allow Bids 1 and 2 to make some inroads even with the Extension Method.

c. Strategic Preference for Plants in Mississippi and for Excluding Asset Purchases

Finally, we assess the effect of possible capital cost overruns when two strategic preferences are applied – a preference for plants in Mississippi and a preference for excluding asset purchases. Table E-23 shows a case using the Modified Annuity Method and Base Case assumptions. As can be seen in the Table Kemper wins only 9 of the 20 scenarios. With an assumed 10% capital cost increase, as seen in Table E-24, that number drops to 4 of the 20 scenarios. With an assumed 20% capital cost increase, as seen in Table E-25, Bids 1 and 2 win in all of the 20 scenarios.

Once again, the point is that, with relatively small capital cost increases, Bids increasingly beat Kemper

CHAPTER FIVE: MPCO'S EVALUATION OF COST AND PERFORMANCE OF KEMPER AND THE BIDS

MPCo conducted its own comparison of the cost and performance of Kemper to that offered by the Bidders. Boston Pacific had several well-attended conference calls with MPCo and Southern personnel in which we exchanged information on inputs and methods for both of our evaluations; we also exchanged substantial documentation. However, it is important that we give priority in the upcoming Hearing to differences in results, not to inputs and methods *per se*. That is, we should focus on this question – ‘how does the bottom line differ.’ By bottom line we mean who wins the cost and performance competition between Kemper and the Bidders, and if it is a Bidder, which one is it?

With our lengthy discussion of Boston Pacific's results in Chapter Four as a back drop, we can start by saying that MPCo, as we understand it, will provide results only for a time horizon of forty years and those results will show that Kemper wins the competition in most of the 20 scenarios. If narrowed to the forty-year time horizon of our Extension Method, our own results also show Kemper winning in most of the scenarios. That is, we do not appear to have significant differences with MPCo on results. Again, this is for the forty-year time horizon under Base Case assumptions.

Given this concurrence on bottom line for the forty-year analysis, it is not worth a lengthy discourse on MPCo's evaluation methods and inputs. We will leave it to MPCo to provide the presentation of its results rather than Boston Pacific trying to summarize them here. Rather we will simply list here some brief comments – pro and con -- on MPCo's methods and inputs

- From the broadest perspective, we endorse MPCo's use of the Strategist Model. It is a commercially available and powerful analytic tool that we have used elsewhere. It allows a rigorous analysis.
- To achieve a forty-year analysis, MPCo used the fill in method for shorter-term Bids. That is, for a twenty year Bid, for example, MPCo filled in by forecasting the energy and capacity cost for the other twenty years in the forty-year time horizon. As we understand it, the resources there to fill in were not substantially different across the resource options – big differences might raise some concerns. For example, we understand that the cost of environmental controls for other plants were not significantly different.
- MPCo's analysis was limited to a forty-year time horizon. Shorter-term analyses, as we have provided, help to more fully address and assess the policy choices faced by the Commission.

- MPCo did not include the fixed-price natural gas offers from two Bidders in its analysis. While it is true that those offers were only indicative we did not expect more at this point in the process and we believe that the Commission should be provided analyses (as we did) with the offers reflected.
- MPCo added an equity penalty to Bids offering PPAs and tolling agreements. We do not believe such a penalty should be used in a resource decision. We agree that MPCo's approach reflects the views of bond rating agencies that are looking from the perspective of debt investors, we do not believe this approach reflects the view from the ratepayer perspective.
- As we understand it, MPCo added to the costs of all resource options (other than Kemper) some of the sunk development costs that have been incurred for Kemper. We disagree with this approach.
- While we agree that electric transmission system upgrades within Southern's territory may be needed to assure reliable service for some of the Bids – that is, to make them designated network resources – we did not add this costs in our analysis at this time although MPCo did.

CHAPTER SIX: RISK PROTECTIONS FOR MISSISSIPPI RATEPAYERS

In our Direct Testimony in Phase Two we said that “it would be constructive to anticipate some of the broader issues we expect to arise in the Phase Two Hearing.”⁵ And, further, that the most important of these broader issues “is how to protect Mississippi ratepayers against risks such as the risk of capital cost overruns, poor power plant performance, and volatile fuel prices.”⁶ We noted that some of the same risk protections that MPCo requires from the Bidders -- its competitors -- should be offered by MPCo in a comparable way for Kemper.⁷

MPCo witnesses responded in their Rebuttal Testimony by saying that such risk protections were inappropriate or unnecessary with Kemper. For example, Ms. Flowers and her two co-authors state that “Performance guarantees for a self-build option are redundant and inappropriate.”⁸ Ms. Flowers sums up her view with this: “Most importantly, customers are protected from risk through the Commission’s continuing jurisdiction over the resource through its useful life.”⁹

We agree the Commission’s jurisdiction and its vigilance are key to getting the risk protection needed by Mississippi ratepayers. I would add that the Commission should feel free to use any tool it believes is necessary to assure ratepayers are actually protected and, further, that the pay-for-performance features of PPAs and tolling agreements have been shown to be good tools.

Moreover, the need for and appropriateness of these pay-for-performance tools is increased by the approach to prudence review taken in the Baseload Act. That approach is substantially different from traditional prudence in which the prudence of construction costs is determined after the fact when power plant construction is completed and the power plant is put into commercial operation. In sharp contrast, with the Baseload Act there is pre-approval of construction expenditures in the sense that the Commission is asked to judge prudence before the expenditure is made and before the plant is in commercial service. We asked MPCo if they agreed that there would be pre-approval in this sense and MPCo said yes.¹⁰

⁵ Mississippi Public Service Commission, Docket No. 09-UA-14, *Boston Pacific Company’s Phase Two Direct Testimony*, December 7, 2009 at Page 4 lines 1 to 2

⁶ *Id.* at Page 4 lines 9 to 10

⁷ *Id.* at Page 7 lines 18 to 23 to page 8 lines 1-4

⁸ Mississippi Public Service Commission, Docket No. 09-UA-14, Phase Two Rebuttal Testimony of Kimberly D. Flowers, David F. Schmidt, and Garey C. Rozier On Behalf of Mississippi Power Company Before the Mississippi Public Service Commission at Page 9 lines 13 to 14

⁹ *Id.* at Page 10 lines 20 to 22

¹⁰ Mississippi Public Service Commission, Docket No. 09-UA-14, Mississippi Power Company’s Responses to Boston Pacific’s Third Set of Data Requests, Data Request Item No.: Boston Pacific-MPC 3-24

Surely, with this pre-approval, the Commission would want to set a requirement on what it expects costs and performance to be once construction is done. One of those requirements could be a limit on total construction costs – the Commission could set a cap based on the estimate of final, installed construction costs MPCo is using in this proceeding in its comparison of Kemper to the Bids. We would be open to an incentive (a reward) if MPCo comes in under that total. And the payment of the capital revenue requirement should be tied to the actual availability of Kemper to produce electricity for Mississippi ratepayers.

The Commission also will want to set expectations on the performance once the plant is put into commercial operation. Performance standards should be set, at a minimum, for net electric output, the amount of lignite needed to produce each MWh of electricity, and the amount of carbon dioxide that is captured and the amount that is emitted; again the estimates provided by MPCo for net output, lignite use, CO₂ capture, and CO₂ emissions would be the basis for the performance standards that should be set.

The cost cap and the performance standards would be nothing more than requirements that MPCo live up to the estimates (the promises) it made in its filing and that the Commission relied upon to make its decision in this proceeding.

Testimony from MPCo's own witnesses show that MPCo should not view these as onerous requirements. For example, Mr. Anderson's Rebuttal Testimony is that ratepayer risk protections are not necessary because MPCo has already built in risk protections. Mr. Anderson is asked what risk protection measures MPCo has embedded in its efforts and he states "the Company has specifically included funds for contingency to cover unexpected and uncontrollable events, funds for escalation to cover cost increases of materials and labor during the construction period, additional capital funding to make improvements to the Plant during start-up and initial operation, and an availability ramp to recognize it may take time to reach optimal performance levels."¹¹ Mr. Anderson goes on to specify these risk protections such as the fact that the construction cost estimate includes a contingency of \$162 million which he says is a 7% overall project contingency rate.¹² He also notes that the cost estimate embeds \$195 million for cost escalation during construction.¹³

We also note that MPCo does not appear to use the typical risk mitigation for new power plants. For example, it is typical to mitigate cost and performance risk by having a third party build the plant under a pay-for-performance engineering, procurement and construction (EPC) agreement. An EPC Agreement can have both cost guarantees and performance guarantees that are backed up with penalties. Instead, the EPC contractor will be an MPCo affiliate. And, unless the Commission sets cost caps and the like for Kemper, we presume that all these cost and performance risks typically taken on by the EPC contractor will actually be

¹¹ Mississippi Public Service Commission, Docket No. 09-UA-14, Phase Two Rebuttal Testimony of Thomas O. Anderson On Behalf of Mississippi Power Company Before the Mississippi Public Service Commission at Page 6 line 22 to page 7 line 4

¹² Id. at Page 7 lines 8 to 9 and line 22

¹³ Id. at Page 8 lines 5 to 7

shifted to Mississippi ratepayers. In addition, Mississippi ratepayers will not even have the benefit of an independent Owner's Engineer – it appears that, the Southern affiliate who is serving as the EPC contractor will also serve as the Owner's Engineer.¹⁴ At a minimum, the Commission will want to have the equivalent of an Owner's Engineer reporting and advising the Commission through the construction and startup of Kemper.

We have similar concerns about ratepayer risk due to the fact MPCo appears to be intending to own the lignite mine rather than buying lignite from a third party mine owner.

Finally, for both risk mitigation and minimization of rate shock, we would suggest the Commission consider both project financing for Kemper and the use of a levelized capital revenue requirement. One of our hopes for project financing is that it would allow the benefits of the 65% debt investment to be passed through fully to Mississippi ratepayers.

¹⁴ Phase Two Direct Testimony of Thomas O. Anderson On Behalf of Mississippi Power Company Before the Mississippi Public Service Commission Docket No. 2009-UA-0014 at Page 16 line 18 to 22

BEFORE THE MISSISSIPPI PUBLIC SERVICE COMMISSION

MISSISSIPPI POWER COMPANY
EC-120-0097-00

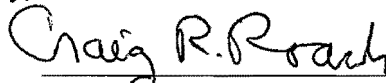
DOCKET NO. 2009-UA-014

IN 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

AFFIDAVIT OF CRAIG R. ROACH

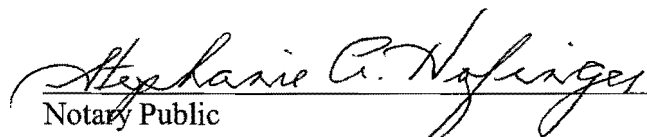
Personally appeared before the undersigned officer authorized to administer oaths,
Craig R. Roach, who being duly sworn, deposes and says; that the foregoing document
was prepared by his or under his supervision; that said document was for use as the
Independent Evaluator Report on behalf of Boston Pacific Company, Inc. in the
captioned proceeding; that the facts states herein are true to the best of his knowledge,
information and belief; and that if asked the questions appearing herein, his answers,
under oath, would be the same.

Dated this the 25th day of January, 2010.



Craig R. Roach

Sworn to and subscribed before me this the 25th day of January, 2010.



Notary Public

My Commission Expires: 5/31/11

STEPHANIE A. HOFINGER
NOTARY PUBLIC DISTRICT OF COLUMBIA
My Commission Expires May 31, 2011

REDACTED PUBLIC

APPENDIX A – [REDACTED]

REDACTED PUBLIC

APPENDIX B – [REDACTED]

REDACTED PUBLIC

APPENDIX C – [REDACTED]

REDACTED PUBLIC

APPENDIX D – [REDACTED]

APPENDIX E – EVALUATION RESULTS TABLES

Table E-1
 Method: Modified Annuity
 Assumptions: Base Case
 Strategic Preference: None

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 14		Bid 14		Bid 14		Bid 14	
		-20.9%		-21.8%		-20.0%		-17.1%
Low	Bid 17		Bid 17		Bid 17		Bid 17	
		-17.1%		-16.1%		-15.3%		-14.5%
Moderate	Bid 17		Bid 17		Bid 17		Bid 17	
		-17.0%		-16.1%		-15.2%		-14.4%
Moderate w/ Volatility	Bid 17		Bid 17		Bid 17		Bid 17	
		-16.9%		-16.0%		-15.1%		-14.3%
High	Bid 17		Bid 17		Bid 17		Bid 17	
		-16.8%		-15.8%		-15.0%		-14.2%

Legend: Each cell identifies either a) the winning independent bid, its annuity price in \$/MWh, and the margin of victory over Kemper, or b), if Kemper won, its annuity price in \$/MWh and its margin of victory over the best independent bid.

Table E-2
 Method: Modified Annuity
 Assumptions: Base Case
 Strategic Preference: All Bids, No Fixed Gas Prices

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 14		Bid 14		Bid 14		Bid 14	
		-20.9%		-21.8%		-20.0%		-17.1%
Low	Bid 14		Bid 14		Bid 14		Bid 14	
		-5.9%		-8.2%		-6.9%		-4.2%
Moderate	Kemper		Kemper		Bid 14		Kemper	
		-3.8%		-0.1%		-0.5%		-1.4%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-11.0%		-7.0%		-6.8%		-7.2%
High	Kemper		Kemper		Kemper		Kemper	
		-24.1%		-21.2%		-19.6%		-18.5%

Table E-3
 Method: Modified Annuity
 Assumptions: Base Case
 Strategic Preference: Term of 20 Years or More

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-13.5%		-15.8%		-14.4%		-10.9%
Low	Bid 2		Bid 2		Bid 2		Bid 2	
		-3.8%		-5.9%		-5.7%		-3.7%
Moderate	Kemper		Bid 2		Bid 2		Bid 2	
		-1.5%		-2.0%		-2.6%		-0.6%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-5.1%		-1.8%		-1.8%		-2.2%
High	Kemper		Kemper		Kemper		Kemper	
		-12.5%		-9.5%		-7.5%		-6.6%

Table E-4
 Method: Modified Annuity
 Assumptions: Base Case
 Strategic Preference: Term of 20 Years or More, Excludes Fixed Price Gas Offers

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-13.5%		-15.8%		-14.4%		-10.9%
Low	Kemper		Bid 1		Bid 1		Kemper	
		-3.1%		-1.2%		-0.8%		-2.3%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-13.4%		-7.7%		-6.3%		-8.5%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-20.2%		-14.8%		-14.1%		-14.0%
High	Kemper		Kemper		Kemper		Kemper	
		-32.5%		-28.3%		-25.5%		-23.7%

Table E-5
 Method: Modified Annuity
 Assumptions: Base Case
 Strategic Preference: APSA Only

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 15		Bid 15		Bid 15		Bid 15	
		-9.8%		-12.7%		-11.8%		-8.7%
Low	Bid 16		Bid 16		Bid 16		Bid 16	
		-0.9%		-3.5%		-3.8%		-2.2%
Moderate	Kemper		Kemper		Bid 16		Kemper	
		-4.4%		-0.4%		-0.6%		-0.9%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-7.8%		-4.1%		-3.7%		-3.7%
High	Kemper		Kemper		Kemper		Kemper	
		-14.8%		-11.5%		-9.2%		-8.0%

Table E-6
 Method: Modified Annuity
 Assumptions: Base Case
 Strategic Preference: Term of 20 Years or More, No APSAs

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-13.5%		-15.8%		-14.4%		-10.9%
Low	Bid 2		Bid 2		Bid 2		Bid 2	
		-3.8%		-5.9%		-5.7%		-3.7%
Moderate	Kemper		Bid 2		Bid 2		Bid 2	
		-1.5%		-2.0%		-2.6%		-0.6%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-5.1%		-1.8%		-1.8%		-2.2%
High	Kemper		Kemper		Kemper		Kemper	
		-12.5%		-9.5%		-7.5%		-6.6%

Table E-7
 Method: Modified Annuity
 Assumptions: Base Case
 Strategic Preference: Only Plants Located in Mississippi

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-13.5%		-15.8%		-14.4%		-10.9%
Low	Bid 2		Bid 2		Bid 2		Bid 2	
		-3.8%		-5.9%		-5.7%		-3.7%
Moderate	Kemper		Bid 2		Bid 2		Bid 2	
		-1.5%		-2.0%		-2.6%		-0.6%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-5.1%		-1.8%		-1.8%		-2.2%
High	Kemper		Kemper		Kemper		Kemper	
		-12.5%		-9.5%		-7.5%		-6.6%

Table E-8
 Method: Extension
 Assumptions: Base Case
 Strategic Preference: None

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-4.1%		-10.0%		-9.5%		-7.1%
Low	Kemper		Kemper		Kemper		Kemper	
		-8.1%		-1.5%		-0.5%		-0.9%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-15.4%		-8.1%		-5.9%		-7.0%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-18.6%		-11.8%		-10.0%		-9.9%
High	Kemper		Kemper		Kemper		Kemper	
		-25.2%		-19.1%		-15.3%		-13.9%

Table E-9
 Method: Extension
 Assumptions: Base Case
 Strategic Preference: All Bids, No Fixed Gas Prices

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-4.1%		-10.0%		-9.5%		-7.1%
Low	Kemper		Kemper		Kemper		Kemper	
		-12.8%		-5.0%		-4.1%		-5.6%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-22.9%		-14.6%		-11.8%		-13.3%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-28.2%		-20.5%		-18.3%		-18.0%
High	Kemper		Kemper		Kemper		Kemper	
		-38.2%		-31.9%		-27.7%		-25.7%

Table E-10
 Method: Extension
 Assumptions: Base Case
 Strategic Preference: Term of 20 Years or More

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-4.1%		-10.0%		-9.5%		-7.1%
Low	Kemper		Kemper		Kemper		Kemper	
		-8.1%		-1.5%		-0.5%		-1.3%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-15.4%		-8.1%		-5.9%		-7.3%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-18.6%		-11.8%		-10.0%		-10.1%
High	Kemper		Kemper		Kemper		Kemper	
		-25.2%		-19.1%		-15.3%		-14.1%

Table E-11
 Method: Extension
 Assumptions: Base Case
 Strategic Preference: Term of 20 Years or More, Excludes Fixed Price Gas Offers

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-4.1%		-10.0%		-9.5%		-7.1%
Low	Kemper		Kemper		Kemper		Kemper	
		-12.8%		-5.0%		-4.1%		-5.6%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-22.9%		-14.6%		-11.8%		-13.3%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-28.2%		-20.5%		-18.3%		-18.0%
High	Kemper		Kemper		Kemper		Kemper	
		-38.2%		-31.9%		-27.7%		-25.7%

Table E-12
 Method: Extension
 Assumptions: Base Case
 Strategic Preference: APSA Only

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 15		Bid 15		Bid 15		Bid 15	
		-0.1%		-6.9%		-7.1%		-5.2%
Low	Kemper		Kemper		Kemper		Kemper	
		-10.8%		-3.9%		-2.3%		-2.6%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-17.8%		-10.2%		-7.6%		-8.5%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-20.8%		-13.8%		-11.6%		-11.3%
High	Kemper		Kemper		Kemper		Kemper	
		-27.2%		-20.9%		-16.7%		-15.2%

Table E-13
 Method: Extension
 Assumptions: Base Case
 Strategic Preference: Term of 20 Years or More, No APSAs

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-4.1%		-10.0%		-9.5%		-7.1%
Low	Kemper		Kemper		Kemper		Kemper	
		-8.1%		-1.5%		-0.5%		-1.3%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-15.4%		-8.1%		-5.9%		-7.3%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-18.6%		-11.8%		-10.0%		-10.1%
High	Kemper		Kemper		Kemper		Kemper	
		-25.2%		-19.1%		-15.3%		-14.1%

Table E-14
 Method: Extension
 Assumptions: Base Case
 Strategic Preference: Only Plants Located in Mississippi

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-4.1%		-10.0%		-9.5%		-7.1%
Low	Kemper		Kemper		Kemper		Kemper	
		-8.1%		-1.5%		-0.5%		-1.3%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-15.4%		-8.1%		-5.9%		-7.3%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-18.6%		-11.8%		-10.0%		-10.1%
High	Kemper		Kemper		Kemper		Kemper	
		-25.2%		-19.1%		-15.3%		-14.1%

Table E-15
 Method: Modified Annuity
 Assumptions: +10% Kemper Cost
 Strategic Preference: None

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 14		Bid 14		Bid 14		Bid 14	
		-26.5%		-27.1%		-25.0%		-22.1%
Low	Bid 17		Bid 17		Bid 17		Bid 17	
		-23.0%		-21.8%		-20.7%		-19.6%
Moderate	Bid 17		Bid 17		Bid 17		Bid 17	
		-22.9%		-21.7%		-20.6%		-19.6%
Moderate w/ Volatility	Bid 17		Bid 17		Bid 17		Bid 17	
		-22.8%		-21.6%		-20.5%		-19.5%
High	Bid 17		Bid 17		Bid 17		Bid 17	
		-22.7%		-21.5%		-20.4%		-19.4%

Table E-16
 Method: Modified Annuity
 Assumptions: +20% Kemper Cost
 Strategic Preference: None

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 14		Bid 14		Bid 14		Bid 14	
		-31.4%		-31.6%		-29.5%		-26.5%
Low	Bid 17		Bid 17		Bid 17		Bid 17	
		-28.1%		-26.7%		-25.4%		-24.2%
Moderate	Bid 17		Bid 17		Bid 17		Bid 17	
		-28.0%		-26.6%		-25.4%		-24.2%
Moderate w/ Volatility	Bid 17		Bid 17		Bid 17		Bid 17	
		-27.9%		-26.6%		-25.3%		-24.1%
High	Bid 17		Bid 17		Bid 17		Bid 17	
		-27.8%		-26.4%		-25.2%		-24.0%

Table E-17
 Method: Extension
 Assumptions: + 10% Kemper Cost
 Strategic Preference: None

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-10.7%		-15.5%		-14.5%		-11.8%
Low	Kemper		Bid 2		Bid 17		Bid 17	
		-1.3%		-4.6%		-5.1%		-4.1%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-9.2%		-2.1%		-0.4%		-2.1%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-12.6%		-6.0%		-4.8%		-5.1%
High	Kemper		Kemper		Kemper		Kemper	
		-19.7%		-13.9%		-10.3%		-9.3%

Table E-18
 Method: Extension
 Assumptions: + 20% Kemper Cost
 Strategic Preference: None

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-16.4%		-20.4%		-19.0%		-16.0%
Low	Bid 2		Bid 2		Bid 17		Bid 17	
		-5.1%		-10.1%		-10.0%		-8.7%
Moderate	Kemper		Bid 2		Bid 2		Bid 17	
		-3.0%		-3.7%		-4.8%		-2.8%
Moderate w/ Volatility	Kemper		Kemper		Bid 2		Kemper	
		-6.6%		-0.3%		-0.5%		-0.4%
High	Kemper		Kemper		Kemper		Kemper	
		-14.2%		-8.6%		-5.3%		-4.7%

Table E-19
 Method: Modified Annuity
 Assumptions: +10% Kemper Cost
 Strategic Preference: Only Plants Located in Mississippi

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-19.6%		-21.3%		-19.6%		-16.0%
Low	Bid 2		Bid 2		Bid 2		Bid 2	
		-10.6%		-12.0%		-11.4%		-9.2%
Moderate	Bid 2		Bid 2		Bid 2		Bid 2	
		-5.5%		-8.4%		-8.5%		-6.2%
Moderate w/ Volatility	Bid 2		Bid 2		Bid 2		Bid 2	
		-2.0%		-4.8%		-4.3%		-3.6%
High	Kemper		Kemper		Kemper		Kemper	
		-5.9%		-3.2%		-1.5%		-0.9%

Table E-20
 Method: Modified Annuity
 Assumptions: +20% Kemper Cost
 Strategic Preference: Only Plants Located in Mississippi

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-24.9%		-26.1%		-24.2%		-20.5%
Low	Bid 2		Bid 2		Bid 2		Bid 2	
		-16.4%		-17.4%		-16.5%		-14.1%
Moderate	Bid 2		Bid 2		Bid 2		Bid 2	
		-11.7%		-13.9%		-13.7%		-11.3%
Moderate w/ Volatility	Bid 2		Bid 2		Bid 2		Bid 2	
		-8.4%		-10.6%		-9.8%		-8.8%
High	Bid 2		Bid 2		Bid 2		Bid 2	
		-0.7%		-3.0%		-4.3%		-4.5%

Table E-21
 Method: Extension
 Assumptions: +10% Kemper Cost
 Strategic Preference: Only Plants Located in Mississippi

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-10.7%		-15.5%		-14.5%		-11.8%
Low	Kemper		Bid 2		Bid 2		Bid 2	
		-1.3%		-4.6%		-5.1%		-3.8%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-9.2%		-2.1%		-0.4%		-2.4%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-12.6%		-6.0%		-4.8%		-5.4%
High	Kemper		Kemper		Kemper		Kemper	
		-19.7%		-13.9%		-10.3%		-9.5%

Table E-22
 Method: Extension
 Assumptions: +20% Kemper Cost
 Strategic Preference: Only Plants Located in Mississippi

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-16.4%		-20.4%		-19.0%		-16.0%
Low	Bid 2		Bid 2		Bid 2		Bid 2	
		-5.1%		-10.1%		-10.0%		-8.4%
Moderate	Kemper		Bid 2		Bid 2		Bid 2	
		-3.0%		-3.7%		-4.8%		-2.5%
Moderate w/ Volatility	Kemper		Kemper		Bid 2		Kemper	
		-6.6%		-0.3%		-0.5%		-0.6%
High	Kemper		Kemper		Kemper		Kemper	
		-14.2%		-8.6%		-5.3%		-4.9%

Table E-23
 Method: Modified Annuity
 Assumptions: Base Case
 Strategic Preference: Plants Located in Mississippi, no APSAs

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-13.5%		-15.8%		-14.4%		-10.9%
Low	Bid 2		Bid 2		Bid 2		Bid 2	
		-3.8%		-5.9%		-5.7%		-3.7%
Moderate	Kemper		Bid 2		Bid 2		Bid 2	
		-1.5%		-2.0%		-2.6%		-0.6%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-5.1%		-1.8%		-1.8%		-2.2%
High	Kemper		Kemper		Kemper		Kemper	
		-12.5%		-9.5%		-7.5%		-6.6%

Table E-24
 Method: Modified Annuity
 Assumptions: +10% Kemper Cost
 Strategic Preference: Plants Located in Mississippi, no APSAs

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-19.6%		-21.3%		-19.6%		-16.0%
Low	Bid 2		Bid 2		Bid 2		Bid 2	
		-10.6%		-12.0%		-11.4%		-9.2%
Moderate	Bid 2		Bid 2		Bid 2		Bid 2	
		-5.5%		-8.4%		-8.5%		-6.2%
Moderate w/ Volatility	Bid 2		Bid 2		Bid 2		Bid 2	
		-2.0%		-4.8%		-4.3%		-3.6%
High	Kemper		Kemper		Kemper		Kemper	
		-5.9%		-3.2%		-1.5%		-0.9%

Table E-25
 Method: Modified Annuity
 Assumptions: +20% Kemper Cost
 Strategic Preference: Plants Located in Mississippi, no APSAs

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-24.9%		-26.1%		-24.2%		-20.5%
Low	Bid 2		Bid 2		Bid 2		Bid 2	
		-16.4%		-17.4%		-16.5%		-14.1%
Moderate	Bid 2		Bid 2		Bid 2		Bid 2	
		-11.7%		-13.9%		-13.7%		-11.3%
Moderate w/ Volatility	Bid 2		Bid 2		Bid 2		Bid 2	
		-8.4%		-10.6%		-9.8%		-8.8%
High	Bid 2		Bid 2		Bid 2		Bid 2	
		-0.7%		-3.0%		-4.3%		-4.5%

Table E-26
 Method: Modified Annuity
 Assumptions: +20% Kemper Cost
 Strategic Preference: Excludes Fixed Price Offers

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 14		Bid 14		Bid 14		Bid 14	
		-31.4%		-31.6%		-29.5%		-26.5%
Low	Bid 14		Bid 14		Bid 14		Bid 14	
		-18.3%		-19.7%		-18.1%		-15.2%
Moderate	Bid 14		Bid 14		Bid 14		Bid 14	
		-9.8%		-12.5%		-12.4%		-10.1%
Moderate w/ Volatility	Bid 14		Bid 14		Bid 14		Bid 14	
		-2.6%		-6.0%		-5.5%		-4.6%
High	Kemper		Kemper		Kemper		Kemper	
		-12.5%		-9.8%		-8.6%		-7.9%

Table E-27
 Method: Extension
 Assumptions: + 20% Kemper Cost
 Strategic Preference: Excludes Fixed Price Offers

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-16.4%		-20.4%		-19.0%		-16.0%
Low	Kemper		Bid 1		Bid 1		Bid 1	
		0.0%		-6.8%		-6.6%		-4.2%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-11.7%		-3.5%		-1.5%		-4.1%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-17.7%		-10.2%		-8.8%		-9.3%
High	Kemper		Kemper		Kemper		Kemper	
		-29.1%		-23.0%		-19.2%		-17.8%

Table E-28
 Method: Modified Annuity
 Assumptions: +20% Kemper Cost
 Strategic Preference: Only Plants Located in Mississippi, Excludes Fixed Price Offers

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-24.9%		-26.1%		-24.2%		-20.5%
Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-10.3%		-13.3%		-12.1%		-8.6%
Moderate	Kemper		Bid 1		Bid 1		Bid 1	
		-0.4%		-4.8%		-5.5%		-2.4%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-8.1%		-3.0%		-3.0%		-3.7%
High	Kemper		Kemper		Kemper		Kemper	
		-22.3%		-18.3%		-15.9%		-14.5%

Table E-29
 Method: Extension
 Assumptions: +20% Kemper Cost
 Strategic Preference: Only Plants Located in Mississippi, Excludes Fixed Price Offers

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-16.4%		-20.4%		-19.0%		-16.0%
Low	Kemper		Bid 1		Bid 1		Bid 1	
		0.0%		-6.8%		-6.6%		-4.2%
Moderate	Kemper		Kemper		Kemper		Kemper	
		-11.7%		-3.5%		-1.5%		-4.1%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-17.7%		-10.2%		-8.8%		-9.3%
High	Kemper		Kemper		Kemper		Kemper	
		-29.1%		-23.0%		-19.2%		-17.8%

Table E-30
 Method: Modified Annuity
 Assumptions: +20% Kemper Cost
 Strategic Preference: Plants Located in Mississippi, no APSAs, Excludes Fixed Price Offers

Natural Gas Price Forecast	CO2 Allowance Price							
	\$0		\$10		\$20		\$30	
PSC Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-24.9%		-26.1%		-24.2%		-20.5%
Low	Bid 1		Bid 1		Bid 1		Bid 1	
		-10.3%		-13.3%		-12.1%		-8.6%
Moderate	Kemper		Bid 1		Bid 1		Bid 1	
		-0.4%		-4.8%		-5.5%		-2.4%
Moderate w/ Volatility	Kemper		Kemper		Kemper		Kemper	
		-8.1%		-3.0%		-3.0%		-3.7%
High	Kemper		Kemper		Kemper		Kemper	
		-22.3%		-18.3%		-15.9%		-14.5%