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June 16, 2014

HAND DELIVERED

Jeff R. Derouen
Executive Director
Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, KY 40602-0615

RE: Case No. 2013-00430

Dear Mr. Derouen:

Enclosed please find and accept for filing the original and ten copies of the Company's post-hearing brief in this matter.

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

Very truly yours,

Mark R. Overstreet

MRO
Enclosure
cc: Michael L. Kurtz

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

JUN 16 2014

PUBLIC SERVICE COMMISSION

In The Matter Of:

THE APPLICATION OF KENTUCKY POWER COMPANY FOR: (1) A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING THE COMPANY TO CONVERT BIG SANDY UNIT 1TO A NATURAL GAS-FIRED UNIT; AND (2) FOR ALL OTHER REQUIRED APPROVALS AND RELIEF

Case No. 2013-00430

POST HEARING BRIEF OF KENTUCKY POWER COMPANY

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TABLE OF CONTENTS

Page

I. INTRODUCTION

The conversion of Big Sandy Unit 1 from a coal-fired to a natural gas-fired generating unit is the outcome of a multi-year evaluation of all reasonable alternatives to address the effects of emerging environmental regulations on Kentucky Power Company's Big Sandy Plant in Lawrence County, Kentucky.[1] In particular, the April 2012 Mercury and Air Toxics Standards ("MATS") Rule means that Kentucky Power cannot continue to operate Big Sandy Unit 1 as a coal-fired generating unit without the installation of significant environmental retrofits in the form of flue gas desulfurization and selective catalytic reduction systems.[2] In light of the size and age of Big Sandy Unit 1, the cost of these investments was too great to merit further consideration.[3]

MATS presented Kentucky Power with the following inescapable choice: convert Big Sandy Unit 1 to a natural gas-fired generating unit, or retire the unit and obtain the necessary capacity and energy from another source – presumably the market. Retirement of Big Sandy Unit 1 without replacement of its capacity and energy will leave Kentucky Power unable to meet its capacity and energy obligations in the winter[4] and on the "razor's edge" of being unable to

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[1] Kentucky Power addressed the impact of these emerging environmental regulations on Big Sandy Unit 2 in Case No. 2012-00578. Because it was the least cost alternative, the Commission approved the transfer of an undivided fifty percent interest in the Mitchell Generating Station to Kentucky Power on January 1, 2014. Order, *In the Matter of: The Application of Kentucky Power Company For: (1) A Certificate of Public Convenience And Necessity Authorizing The Transfer To the Company Of A Fifty Percent Undivided Interest In The Mitchell Generating Station And Associated Assets; (2) Approval Of The Assumption By Kentucky Power Company Of Certain Liabilities In Connection With The Transfer Of The Mitchell Generating Station; (3) Declaratory Rulings; (4) Deferral of Costs Incurred In Connection With The Company's Efforts To Meet Federal Clean Air Act And Related Requirements; And (5) For All Other Required Approvals And Relief* (Ky. P.S.C. October 7, 2013) ("Mitchell Transfer Order"). Kentucky Power will retire Big Sandy Unit 2 no later than June 1, 2015.

[2] Weaver Direct Testimony at 6. Unlike Big Sandy Unit 2, the decision to convert Big Sandy Unit 1 is not tied to the 2007 New Source Review Consent Decree. While the NSR Consent Decree mandates Kentucky Power to retrofit Big Sandy Unit 2 with a flue-gas desulfurization system by December 31, 2015, the Consent Decree only requires that the Company use low sulfur coal at Big Sandy Unit 1. *See* Kentucky Power's Response to Data Request Staff 2-1; Weaver Direct Testimony at 7.

[3] Weaver Direct Testimony at 6.

[4] Weaver Hearing Testimony at 46-56; Kentucky Power Hearing Exhibit 1 at 1-2.

meet its capacity obligations in the summer.[5] In fact, without Big Sandy Unit 1 Kentucky Power will be unable to meet its allocated PJM Summer UCAP obligation through planning year 2019.[6]

Because conversion represents the better of two least cost alternatives, Kentucky Power elected to convert Big Sandy Unit 1 in lieu of retiring it and subjecting its customers to the costs and volatility of the market. Without Big Sandy Unit 1, the Company's facilities are and will continue to be inadequate to provide reasonable service to current and future customers. As such, the conversion satisfies KRS 278.020(1).

With the conversion of Big Sandy Unit 1, Kentucky Power will have completed its plan for addressing the impact of the MATS Rule on its Big Sandy Plant. The combination of the transfer of an undivided fifty percent interest in the Mitchell generating station (to replace Big Sandy Unit 2), which the Commission approved in Case No. 2012-00578, and the Big Sandy Unit 1 conversion represents the lowest cost alternative for Kentucky Power to meet its energy and capacity requirements in the face of emerging environmental regulations. Kentucky Power respectfully requests that its application be granted.

II. THE BIG SANDY UNIT 1 NATURAL GAS CONVERSION PROJECT

A. The Converted Big Sandy Unit 1 Will Provide Reliable Capacity and Energy.

Big Sandy Unit 1 is well suited for the conversion from coal to natural gas-firing.[7] Much of the infrastructure relating to the operation of Big Sandy Unit 1 as a coal-fired plant, including the plant buildings and structures, steam turbines and electrical generator, electrical distribution system, condensate and feedwater systems, and wastewater processing systems, will continue to be used at the plant following the conversion.[8] The conversion will result in a slight decrease in

[5] Weaver Hearing Testimony at 56-59; Kentucky Power Hearing Exhibit 1 at 3.

[6] Kentucky Power Hearing Exhibit 1 at 3.

[7] Walton Direct Testimony at 4.

[8] *Id.* at 4-5.

the nameplate capacity of the unit, from 278 MW to 268 MW, as a result of the removal of the primary air fans currently used to transport coal from the pulverizers to the furnace.[9] The unit is anticipated to have a slightly higher heat rate than it does currently as a coal-fired generating unit, but that heat rate will still be significantly better than the typical heat rate of a combustion turbine.[10]

The conversion process is expected to be complete by mid-May 2016.[11] Kentucky Power sought and received from the Kentucky Division for Air Quality, a one-year administrative extension to the MATS compliance deadline.[12] This means that Kentucky Power must cease operating Big Sandy Unit 1 as a coal unit no later than April 16, 2016.[13] Kentucky Power anticipates that the tie-in shutdown of the unit will take between 12 to 16 weeks to accomplish.[14] The Company plans to schedule this tie-in shutdown to avoid having the unit offline during the PJM Summer Peak beginning in June 2016.[15]

As part of the economic modeling that demonstrated that the conversion of Big Sandy Unit 1 to natural gas is a least cost alternative, Kentucky Power assumed a fifteen year useful life for the converted unit.[16] During the hearing in this case, Company Witness Walton, Director of Projects for American Electric Power Service Corporation, testified that the converted unit could operate longer than the 15-year period that was modeled:

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[9] Walton Hearing Testimony at 90-91.

[10] *Id.* at 110-111.

[11] Walton Direct Testimony at 7;

[12] Wohnhas Supplemental Testimony at 6.

[13] *Id.*; Exhibit RKW-2; Walton Hearing Testimony at 104.

[14] Walton Hearing Testimony at 102.

[15] *Id.* at 103-04.

[16] Weaver Hearing Testimony at 20-21.

> In fact, you know, based upon the condition today, that - - what we would expect from its operation over a 15-year period as a gas unit, it would not be beyond, you know, my expectations that it could operate for much longer than 15 years.[17]

Following the conversion, Kentucky Power anticipates the natural gas-fired Big Sandy Unit 1 will operate as an intermediate duty cycle unit[18] with an average capacity factor between 9 and 15%.[19]

B. The Decision to Convert Big Sandy Unit 1 Has Been Confirmed by Multiple Rounds of Evaluations.

1. The Conversion of Big Sandy Unit 1 Has Been Extensively Modeled.

Kentucky Power first evaluated disposition alternatives for Big Sandy Unit 1 as part of its analysis of the future of the entire Big Sandy Plant. Beginning with the Company's filing in Case No. 2011-00401, Kentucky Power modeled options for replacing or retrofitting both units at the Big Sandy Plant.[20] Following the Company's withdrawal of its application in Case No. 2011-00401, and as the implications of the emerging environmental regulations, in particular the issuance of the final MATS Rule, and changes in the market became more clear, Kentucky Power reevaluated the disposition alternatives for the entire Big Sandy Plant. Following the 2012 evaluation, Kentucky Power filed Case No. 2012-00578 seeking approval to replace the capacity and energy from Big Sandy Unit 2 with the transfer of an undivided fifty percent interest in the Mitchell generating station ("Mitchell Transfer") to Kentucky Power. As part of the economic modeling performed to support the Mitchell Transfer, Kentucky Power also

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[17] Walton Hearing Testimony at 94.

[18] *Id.* at 19; Walton Hearing Testimony at 92

[19] In the fall of 2013, when Kentucky Power first performed the economic modeling for the Big Sandy Unit 1 conversion project, the STRATEGIST® model indicated that a natural gas-fired Big Sandy Unit 1 would operate with an approximate 25% capacity factor. In the spring of 2014, as part of the evaluation of responses to the natural gas pipeline lateral RFP, AEPSC conducted modeling using the Plexos tool which yielded a 9-15% capacity factor for the converted Big Sandy Unit 1. AEPSC reevaluated the algorithms used in the STRATEGIST® model and discovered that STRATEGIST® modeled system marginal dispatch costs that were lower than the actual marginal costs for both Big Sandy Unit 1 and for the other units evaluated. Weaver Hearing Testimony at 163-168. When the model was re-run using the proper costs, and consequent capacity factor, the conversion of Big Sandy Unit 1 remained a least cost alternative.

evaluated potential disposition alternatives for Big Sandy Unit 1, including converting the unit to natural gas.[21] The modeling in Case No. 2012-00578 showed that the combination of the Mitchell Transfer with the conversion of Big Sandy Unit 1 to natural gas was the least cost alternative for the Company to meet its capacity and energy requirements in light of emerging environmental regulations.[22]

On March 28, 2013 Kentucky Power, issued the 250 MW RFP to determine the least-cost, reasonable alternative for the disposition of Big Sandy Unit 1.[23] The RFP solicited bids from projects located within PJM that could begin delivery by June 1, 2015.[24] These requirements were necessary to ensure that bids could be compared on an "apples to apples" basis to the Big Sandy Unit 1 conversion project and to protect the Company's customers from exposure in the market upon retirement of Big Sandy Unit 1.[25] Under the terms of the 250 MW RFP, Kentucky Power retained the right to terminate the RFP at any time.[26] Kentucky Power received proposals in response to the 250 MW RFP on June 11, 2013.[27] As required by the Commission, on May 28, 2103 Kentucky Power filed in Case No. 2012-00578 an analysis of

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[20] In Case No. 2011-00401, Kentucky Power sought approval for a proposed retrofit of Big Sandy Unit 2 with a flue-gas desulfurization system. As part of the analysis for Big Sandy Unit 2 in that case, the conversion of Big Sandy Unit 1 to a natural gas combined cycle plant (as a replacement for Big Sandy Unit 2) was considered. By motion dated May 30, 2012, Kentucky Power sought permission to withdraw Case No. 2011-00401 to reconsider all options in light of recent market changes. The Commission granted Kentucky Power's motion on May 31, 2012.

[21] Weaver Direct Testimony at 4-5.

[22] *See* Case No. 2012-00578, Exhibit SCW-1.

[23] Karrasch Direct Testimony at 3.

[24] *Id.* at 4. Kentucky Power has sought and received a one-year administrative extension to the MATS compliance date, allowing the Company to continue operating Big Sandy Unit 1 as a coal-fired plant until April 16, 2016. This extension is predicated on Kentucky Power's conversion of Big Sandy Unit 1 to natural gas. Absent the conversion, Big Sandy Unit 1 must cease operations as a coal-fired plant on April 16, 2015. *Id.* at 4-5.

[25] Karrasch Direct Testimony at 4.

[26] Exhibit JAK-1, Section 9.1.

[27] Karrasch Direct Testimony at 3.

bids received in response to the 250 MW RFP.[28] The analysis showed that the natural gas conversion of Big Sandy Unit 1 was a lowest cost alternative.[29]

On July 2, 2013, Kentucky Power and two of the intervenors in Case No. 2012-00578 filed a Stipulation and Settlement Agreement in that case. Paragraph 13 of the Stipulation and Settlement Agreement addresses the disposition of Big Sandy Unit 1:

> 13. The Company shall file with the Commission an application pursuant to KRS 278.020 for Certificate of Public Convenience and Necessity to convert the 268 MW Big Sandy Unit 1 to natural gas, and will exercise its option to terminate the May 28, 2013 Request for Proposals. All parties to this Settlement Agreement agree they will not move to intervene to challenge the Company's filing for the required Certificate of Public Convenience and Necessity to convert Big Sandy Unit 1 to natural gas, provided the cost to convert is approximately $60 million.[30]

On October 7, 2013, the Commission issued an order approving the Stipulation and Settlement Agreement with modifications unrelated to Paragraph 13.[31] A week later, Kentucky Power filed its notice with the Commission accepting the modifications. In accordance with Paragraph 13 of the Stipulation and Settlement Agreement, Kentucky Power notified the bidders to the RFP that it had exercised its option to terminate the 250 MW RFP.[32] In addition, the proposals themselves had expired by the terms of the RFP.[33]

Finally, on January 8, 2014, Kentucky Power issued an RFP for the construction, operation and maintenance of a natural gas pipeline lateral ("Lateral") to provide natural gas to Big Sandy Unit 1 following completion of the proposed conversion.[34] Seven different bidders provided nine different proposals; three of the responses were non-conforming and were not

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[28] Weaver Direct Testimony at 18.

[29] *Id.* at 18-19.

[30] Wohnhas Direct Testimony at 6.

[31] Mitchell Transfer Order at 43.

[32] Karrasch Direct Testimony at 10.

[33] Wohnhas Hearing Testimony at 153-154.

[34] Wohnhas Supplemental Testimony at 1.

further considered.[35] After evaluating the conforming bids, a bid from Columbia Gas Transmission, LLC ("Columbia Gas") that included firm transportation on the interstate mainline, was selected.[36] Kentucky Power selected the Columbia Gas proposal because it was the lowest cost alternative (on a net present value basis) as compared to other bids, when all were evaluated based on the assumption of firm transportation on the interstate mainline. The Columbia Gas proposal also enabled Kentucky Power to secure the reliability benefits and operational flexibility that firm transportation provides.[37] Because results from the subsequently issued Lateral RFP were not available at the time Kentucky Power performed the modeling in this case, indicative estimates from FERC-approved natural gas pipeline companies were used.[38] The costs of the selected Lateral RFP bid were less than those included in the original modeling, confirming that the Big Sandy Unit 1 conversion is a lowest-cost alternative.[39]

Over the course of the past three years, Kentucky Power has evaluated the economics of converting Big Sandy Unit 1 to a natural gas-fired generating unit. At each step, the conversion proved to be a lowest cost solution.

2. Kentucky Power Appropriately Modeled the Alternatives for the Disposition of Big Sandy Unit 1.

(a). Kentucky Power Properly Modeled the Relative Economics of All Reasonable Alternatives.

To evaluate the relative economics of converting Big Sandy Unit 1 to natural gas, AEPSC, at Kentucky Power's direction, utilized the proprietary Strategist® long-term resource

[35] *Id.* at 2.

[36] *Id.* at 2-3

[37] *Id.* at 4-5.

[38] *Id.* at 5; *See also* Kentucky Power's Response to Data Request Staff 1-1(a).

[39] Wohnhas Supplemental Testimony at 5-6.

optimization tool.[40] Strategist® is an industry-accepted and highly sophisticated economic modeling application that the Company has utilized in prior proceedings before the Commission.[41] The Strategist® model provided a view of the relative economics of the reasonable alternatives for replacing Big Sandy Unit 1 as a coal-fired asset over the nearly 30 year study period.[42]

(i). *Kentucky Power Used the Highest Likely Cost of the Big Sandy Unit 1 Conversion in its Economic Evaluation.*

The cost estimate for the conversion of Big Big Sandy Unit 1 used in the Strategist® modeling was developed by the AEPSC Projects Group with information obtained from multiple industry consultants and natural gas transporters.[43] The estimated cost for the conversion project, excluding allowance for funds used during construction and the natural gas pipeline lateral costs, was approximately $50 million.[44] The cost used by Kentucky Power in the economic modeling accounted for the "worst-case" reasonably anticipated cost-overrun scenario.[45] As part of estimating the project cost, the AEPSC Projects Group employed a risk register to evaluate the potential economic impacts of reasonably anticipated occurrences that could lead to cost-overruns.[46] The risk register determines how probable it is that the total capital costs for the project will be lower than a given value.[47] For example, based on the risk

[40] Weaver Direct Testimony at 7.

[41] *Id.*

[42] *Id.* This comparative view is different from an isolated test-year cost-of-service view. *Id.*

[43] Walton Hearing Testimony at 96.

[44] Walton Direct Testimony at 16.

[45] Walton Hearing Testimony at 99-101.

[46] Walton Hearing Testimony at 100; Exhibit RLW-3.

[47] Walton Hearing Testimony at 100-101.

register results for this project, there is a 70% probability that the total capital costs of the Big Sandy Unit 1 conversion will be less than $42,039,757 (the "P70" value).[48]

For the economic modeling in this case, the Company used the "P100" cost estimate.[49] This cost estimate includes sufficient risk contingency so that "there is a 99.9 percent probability that you will not exceed that number in the total job cost..."[50] Kentucky Power's use of the P100 cost estimate as the foundation for its analysis of the relative economics of the Big Sandy Unit 1 natural gas conversion was both reasonable and provides further assurance that the conversion is the better least cost alternative.

(ii). Kentucky Power Used the Most Recent Forecasts of Load and Commodity Pricing in its Economic Evaluation.

Part of the input to the Strategist® model were forecasts of the anticipated load that must be served by Kentucky Power, along with a long-term forecast of commodity prices that affect the price of power within the PJM market. Based on an expert evaluation of national and regional economic trends, as well as semi-annual discussions with customer service representatives with first-hand knowledge of customer-specific demand needs, AEPSC develops a formal load forecast for Kentucky Power annually.[51] In evaluating the Big Sandy Unit 1 conversion, Kentucky Power used the June 2013 load forecast.[52] This was the most recent load forecast for the Company available at the time the analysis was performed.[53]

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[48] Exhibit RLW-3 at 4.

[49] Walton Hearing Testimony at 112.

[50] *Id.* at 101.

[51] Weaver Hearing Testimony at 10-11.

[52] *Id.* at 42-43.

[53] *Id.* at 10. Kentucky Power filed its verified application in this case within weeks of filing the 2013 IRP Report. In both instances, Kentucky Power utilized its June 2013 load forecast. *Id.* at 62; Wohnhas Hearing Testimony at 141-43. New load forecasts for Kentucky Power are issued annually, following expert analysis of national and regional economic trends along with information regarding specific customer demand expectations. Wohnhas Hearing Testimony at 140-42. Although there were differences between the 2009 load forecast used by the Company in its 2009 IRP Report and the actual load experienced in the subsequent years, 2013 IRP Report at 78-79, the Company subsequently updated the load forecast annually since 2009 to reflect better the pace and nature of the

The long-term commodity pricing forecast used in the modeling was prepared by the AEP Fundamental Analysis group in late-August of 2013.[54] The Fundamental Analysis Group reviews key market trends periodically, but only makes formal updates to the forecast when warranted.[55] The most recent such update was the August 2013 long-term commodity pricing forecast, which was used for the modeling in this case.[56] Kentucky Power's use of the most recent load and commodity price forecasts in performing the economic analysis confirmed that the Big Sandy Unit 1 conversion was a least cost option.

(iii). Kentucky Power's Use of the 250 MW RFP Proposals as Benchmarks Was Reasonable.

Kentucky Power used the pricing and performance data from the conforming responses from the 250 MW RFP as benchmarks for the Big Sandy Unit 1 modeling.[57] The Company utilized these results, "recognizing they still represent very good instructive benchmarks, and compared those to the Big Sandy 1 alternative."[58] Importantly, Kentucky Power had not advanced to the point of negotiating final terms with any of the bidders to the 250 MW RFP.[59] As such, no contract terms had been included to mitigate counterparty or unit condition risk.[60]

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economic recovery following the "Great Recession." *Id.* at 146-47. Kentucky Power's iterative load forecasting process relies on expert analysis of key economic indicators and accounts for specific information about anticipated customer demand levels within the service territory, and its use of the 2013 load forecast in its economic modeling was reasonable.

[54] Weaver Hearing Testimony at 10.

[55] *Id.* 40-41.

[56] *Id.* at 10-11. As such, the forecast used in this proceeding varied slightly from that used in Case No. 2012-00578. Weaver Direct Testimony at 19-20; Exhibit SCW-3; Exhibit SCW-4.

[57] Under the terms of the RFP, the proposals expired 120 days after the close of the RFP. Wohnhas Hearing Testimony at 153-154. In addition, Paragraph 13 of the July 2, 2013 Stipulation and Settlement Agreement required the Company to terminate the RFP and to file this application. Weaver Direct Testimony at 11-12.

[58] Weaver Hearing Testimony at 22.

[59] Karrasch Hearing Testimony at 73-74

[60] *Id.*

The inclusion of risk mitigation terms typically increase costs and would have enhanced the Big Sandy Unit 1 conversion's relative economic position.[61]

(b). A Natural Gas-Fired Big Sandy Unit 1 Will Not Be Materially Affected by Proposed Greenhouse Gas Regulations.

(i). *The Proposed Greenhouse Gas Performance Standards Under Section 111(b) of the Clean Air Act Will Not Apply to Big Sandy Unit 1.*

The Environmental Protection Agency ("EPA") has issued two proposed regulations that would establish greenhouse gas performance standards under Section 111(b) of the Clean Air Act for electric generating units. Neither apply to Big Sandy Unit 1. The first, published in the federal register on January 8, 2014, proposes greenhouse gas performance standards only for newly constructed power plants.[62] As such, the January 8, 2014 proposed standards will not apply to the converted Big Sandy Unit 1.[63]

Additionally, on June 2, 2014, EPA issued proposed greenhouse performance standards for modified and reconstructed power plants.[64] Under this proposed rule, electric generating units that are modified or reconstructed such that (1) the maximum achievable hourly rate of greenhouse gas emissions is increased or (2) the capital costs of the new components installed during the modification exceed 50% of the capital costs of an entirely new comparable facility, will be subject to greenhouse gas emission standards under Section 111(b) of the Clean Air Act.[65] Neither of these conditions apply. Accordingly, the natural gas-fueled Big Sandy Unit 1

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[61] *Id.* at 82.

[62] 79 Fed. Reg. 1429 (Jan. 8, 2014).

[63] *See* Kentucky Power's Response to Post Hearing Data Request 5.

[64] EPA's pre-publication notice of proposed rulemaking for proposed greenhouse performance standards for modified and reconstructed power plants can be found at the following link: http://www2.epa.gov/carbon-pollution-standards/proposed-carbon-pollution-standards-modified-and-reconstructed-power.

[65] *Id.*

will not be subject to the proposed greenhouse gas performance standards for modified and reconstructed power plants under Section 111(b) of the Clean Air Act.[66]

(ii). *Kentucky Power Modeled a Carbon Tax as a Proxy for the Impacts of Greenhouse Gas Regulations on Existing Sources Under Section 111(d) of the Clean Air Act.*

At the same time it issued the proposed greenhouse gas standards for modified and reconstructed power plants under Section 111(b) of the Clean Air Act, EPA issued the proposed Clean Power Plan which included rules for the regulation of greenhouse gas emissions from existing power plants under Section 111(d) of the Clean Air Act.[67] As an emitter of greenhouse gases (albeit at a lower rate that if it were to remain a coal-fired power plant), the natural gas converted Big Sandy Unit 1 power plant would be subject to regulation under Section 111(d) of the Clean Air Act through the Clean Power Plan. [68] The Clean Power Plan has only recently been proposed and the public comment period has not yet started.[69] As such, the exact implication of any greenhouse gas regulation under Section 111(d) of the Clean Air Act on the converted Big Sandy Unit 1 is unclear. However, Kentucky Power included in the economic modeling performed to evaluate the economics of the Big Sandy Unit 1 conversion a $15/ton "carbon tax" starting in 2022.[70] The carbon tax used in the modeling for this case provides a reasonable proxy for the potential impacts of the proposed Clean Power Plan on a natural gas converted Big Sandy Unit 1.[71]

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[66] *See* Kentucky Power's Response to Post Hearing Data Request 5.

[67] EPA's pre-publication notice of proposed rulemaking for the Clean Power Plan can be found at the following link: http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule.

[68] *See* Kentucky Power's Response to Post Hearing Data Request 5.

[69] *See* EPA's pre-publication notice of proposed rulemaking for the Clean Power Plan.

[70] Weaver Hearing Testimony at 16.

[71] *Id.*

III. ARGUMENT

A. The Public Convenience and Necessity Mandates the Natural Gas Conversion of Big Sandy Unit 1.

1. The Legal Standard.

Under KRS 278.020(1), a certificate of public convenience and necessity may be issued upon a demonstration of both need for the proposed facility and the absence of wasteful duplication.[72] Need requires a demonstration of that the "utility's existing facilities are or will soon be inadequate to provide reasonable service to current or future customers."[73] Wasteful duplication includes both "excess of capacity over need," and "an excessive investment in relation to productivity or efficiency," or an "unnecessary multiplicity of physical properties."[74] The demonstration of the absence of wasteful duplication is premised upon a showing that "a thorough review of all alternatives has been performed."[75] Although "least-cost" is "embedded in KRS 278.020(1),"[76] the "[s]election of a proposal that ultimately costs more than an alternative does not necessarily result in wasteful duplication."[77] Instead, "[a]ll relevant factors must be balanced."[78]

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[72] Mitchell Transfer Order at 26-27, *citing Kentucky Utilities Co. v. Public Service Commission*, 252 S.W2d 885 (Ky. 1952).

[73] *In The Matter Of: A Review Of The Adequacy Of Kentucky's Generation Capacity and Transmission And Transmission System*, Administrative Case No. 387 (Ky. P.S.C. December 20, 2001).

[74] *Citizens For Alternative Water Solutions v. Kentucky Public Service Commission*, 358 S.W.3d 488, 490 (Ky. App. 2011).

[75] *In The Matter Of: Application Of East Kentucky Power Cooperative, Inc. For A Certificate Of Public Convenience And Necessity For Alteration Of Certain Equipment At The Cooper Station And Approval Of A Compliance Plan Amendment For Environmental Surcharge Cost Recovery*, Case No. 2013-00259 at 14-15 (Ky. P.S.C. February 20, 2014).

[76] Mitchell Transfer Order at 27.

[77] *In The Matter Of: Application Of South Kentucky Rural Electric Cooperative Corporation For A Certificate Of Convenience And Necessity To Construct A New Headquarters Facility In Somerset, Kentucky*, Case No. 2008-00371 at 5 (Ky. P.S.C. October 15, 2009).

[78] Mitchell Transfer Order at 27.

2. The Conversion of Big Sandy Unit 1 Will Permit Kentucky Power to Provide Reasonable and Adequate Service at Fair, Just, and Reasonable Rates.

The optimum long-term alternative for Kentucky Power to meet impending environmental regulations, particularly MATS, is the conversion of the existing coal-fired Big Sandy Unit 1 to a natural gas-fired steam generating unit.[79] Absent significant, expensive, and non-economic environmental retrofits, including the installation of a flue gas desulfurization and selective catalytic reduction units, Big Sandy Unit 1 must be retired in April 2015 to meet the MATS standards.[80] And without the attendant capacity and energy provided by Big Sandy Unit 1, Kentucky Power will be both capacity and energy short.[81]

(a). The Capacity to Be Provided by Big Sandy Unit 1 Is Required to Meet the Company's Projected Winter Load.

Kentucky Power is a winter-peaking utility.[82] Thus, while PJM does not require Kentucky Power to maintain a particular reserve margin with respect to its winter peak,[83] the Company must have adequate resources to provide energy to its customers at all times.[84] Without adequate winter capacity, the Company will be forced to go to the market more frequently than otherwise to meet its customers' energy needs,[85] including times, such as during the January and February 2014 "Polar Vortex," when prices are extremely high:[86]

> and all one has to realize is – or consider is the implications this past January or February of the polar vortex and realize that, you know, this unit could provide

[79] Weaver Direct Testimony at 14.

[80] *Id.* at 6.

[81] Weaver Hearing Testimony at 49-50, 64.

[82] *Id.* at 25.

[83] *Id.* at 49.

[84] *Id.* at 49-50.

[85] *Id* at 50.

[86] In January 2014 the average day-ahead on-peak price exceeded $118 per MW hour. *Id.*

significant relief from Kentucky Power – for Kentucky Power Company's customers by avoiding very, very high market energy pricing.[87]

Without Big Sandy Unit 1, but assuming normalized weather and the addition of 116 MW[88] of new capacity or reduced load through bio-mass, wind, solar, demand-side management and energy efficiency resources, Kentucky Power is projected to be between 157 MW and 254 MW short of the capacity required to meet its projected winter peaks during each of the 2015 through 2028 planning years[89]:

Planning Year	KPCo Winter Capacity "Reserve Margin" EXCLUDING Big Sandy Unit 1
2015	(254)
2016	(241)
2017	(176)
2018	(176)
2019	(165)
2020	(165)
2021	(161)
2022	(159)
2023	(157)
2024	(158)
2025	(162)
2026	(163)
2027	(161)
2028	(173)

Significantly, this projected shortfall does not reflect any additional winter "capacity position" necessary to provide a winter reserve margin comparable to that required by PJM for the summer (15.7%).[90] Such a margin is desirable to address unit outages or weather events that may increase the Company's load beyond the forecasted peaks.[91] Even with the addition of the 116

[87] *Id.* at 38.

[88] Vol. A, 2013 IRP Report at Exhibit 4-13.

[89] Company Hearing Exhibit 1 at 1, Col. E.

[90] Weaver Hearing Testimony at 47.

[91] *Id.*

MW of additional resources set out in the Company's 2013 IRP Report,[92] without Big Sandy Unit 1 Kentucky Power is still projected to fall between 383 MW and 479 MW short of covering its winter peak during the 2015 through 2028 planning years when allowance is made for a 15.7% "winter reserve margin" criterion:[93]

Planning Year	Kentucky Power Winter "Capacity Position" EXCLUDING Big Sandy Unit 1
2015	(479)
2016	(466)
2017	(401)
2018	(401)
2019	(390)
2020	(390)
2021	(387)
2022	(385)
2023	(383)
2024	(385)
2025	(389)
2026	(391)
2027	(389)
2028	(402)

(b). The Capacity to Be Provided by the Converted Big Sandy Unit 1 Is Required to Meet the Company's Allocated PJM Summer UCAP Obligation.

During the summer, when Kentucky Power's peak is approximately 300 MW less than its winter peak,[94] the Company still faces capacity shortages without Big Sandy Unit 1. Indeed, even with the additional capacity resources described in the Company's IRP, Kentucky Power in

[92] 2013 Kentucky Power Company I.R.P. Report, *In The Matter Of The Integrated Resource Planning Report Of Kentucky Power Company To The Kentucky Public Service Commission*, Case No. 2013-00475 (Ky. P.S.C. Filed December 20, 2013) ("2013 IRP Report").

[93] Company Hearing Exhibit 1 at 1, Col. I.

[94] Weaver Hearing Testimony at 59.

2015 through 2019 will be 5 MW to 111 MW short of meeting its allocated PJM UCAP obligation,[95] and on the "razor's edge"[96] the remaining years:

Planning Year	KPCo (PJM) Summer Capacity Position EXCLUDING Big Sandy Unit 1	
	Without New IRP Capacity	With New IRP Capacity
2015	(121)	(100)
2016	(135)	(111)
2017	(146)	(66)
2018	(89)	(107)
2019	(90)	(5)
2020	(86)	7
2021	(91)	13
2022	(96)	12
2023	(98)	16
2024	(99)	24
2025	(109)	21
2026	(113)	25
2027	(119)	27
2028	(124)	25

Without these additional IRP resources, the acquisition of none of which is guaranteed, Kentucky Power would lack, by a margin of 86 MW to 146 MW, sufficient capacity to meet its PJM UCAP obligation in each of the 2015-2028 planning years.[97]

(c). Without Big Sandy Unit 1 Kentucky Power Will Be Energy Short.

The need for Big Sandy Unit 1 is even more compelling demonstrated by the Company's energy position if Big Sandy Unit 1 is retired in lieu of converting it to a natural gas-fired generating unit. The Company's modeling indicates, for example, that without the proposed conversion Kentucky Power "customers would be at the mercy of a competitive marketplace" for

[95] Company Hearing Exhibit 1 at 1, Col. E.

[96] Weaver Hearing Testimony at 59.

[97] Company Hearing Exhibit 1 at 1, Col. D.

1,026 hours (or 11.7% of the time) during 2025.[98] This market exposure carries a real-world price tag that, on a cumulative present worth ("CPW") basis, makes going to market for energy and capacity for just ten years $133 million more expensive than the cost of the Big Sandy Unit 1 conversion:

> Option 2A is the option we looked at that said I'm going to retire Big Sandy 1 and I'm going to rely upon the PJM capacity and energy market for a ten-year period, so through 2025, and then build something.... In fact, in the updated analysis we did, it was $133 million more expensive cumulative present worth over the long-term study period versus Big Sandy 1 gas conversion option.[99]

This is a cost the Company's customers need not and should not be required to pay.

(d). A Natural Gas-Fired Big Sandy Unit 1 Will Enable Kentucky Power's Customers to Reap the Benefits of Lower Than Forecasted Natural Gas Prices, Will Diversify the Company's Generation Portfolio, and Will Serve to Mitigate the Risk Associated With the Loss of a Single Generating Unit.

In addition to meeting the Company's capacity and energy needs, a converted Big Sandy Unit 1 also provides a "hedge" against lower than forecasted natural gas prices. If natural gas prices fall below the levels used in the Company's modeling, the unit can and will run more frequently, allowing the Company's customers to take advantage of lower natural gas prices:

> one of the nice hedges of this facility is, if gas prices go back to the very low levels, then this unit will obviously run more.... It could run for very long periods at its full capability .... if needed, days on end.... This is a gas steam unit and not a turbine, it is not an engine, and as a result it could, it could absolutely run for long stretches.[100]

A converted Big Sandy Unit 1 also allows Kentucky Power to diversify its fuel mix. Although the Company's generation fleet is currently 100% coal-fired, the conversion will complement the

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[98] Company Hearing Exhibit 1 at 2.

[99] Weaver Hearing Testimony at 55-56. In fact, as shown in the Company's response to a hearing data request the conversion of Big Sandy Unit 1 to a natural gas-fired unit is over $148 less expensive, on a CPW basis, than going to market for ten years. Kentucky Power's Response to Post-Hearing Data Request 1, Attachment 1.

[100] *Id.* at 38-40. By definition, the availability of this hedge assumes the Company is purchasing its natural gas supply in the spot market. *See* Walton Hearing Testimony at 105.

future additions of demand-side management, energy efficiency, and biomass resources, along with the solar and wind resources described in the Company's IRP report.[101] A diversified portfolio allows the Company better to address regulatory or economic changes directed at a single generation fuel source. Further, an additional unit enables the Company to mitigate the risk associated with the loss of a single unit.[102]

(e). Conversion of Big Sandy Unit 1 to a Natural Gas-Fired Generating Unit Permits the Company to Avoid the Risks Associated With Going to the Market and Provides Other Benefits.

By owning the asset Kentucky Power eliminates the counterparty and unit condition risks that are inherent in pursuing market alternatives.[103] Had Kentucky Power decided to retire Big Sandy Unit 1 and pursue a bilateral contract for replacement capacity and energy, failures of the contracting party to fulfill its obligations under the purchase or tolling agreement, whether due to events such as filing bankruptcy or an inability to operate the generating units, could leave Kentucky Power and its customers at the mercy of the market for replacement energy and capacity.[104] These risks could be mitigated (at a cost to Kentucky Power)[105] during contract negotiations, but not eliminated.[106]

The natural gas conversion of Big Sandy Unit 1 is expected to require an average of 80 craft workers during the construction period, with an estimated peak construction labor force of approximately 175 workers during the tie-in period.[107] In addition, the construction of the natural gas lateral that will provide natural gas service to the converted Big Sandy Unit 1 is

[101] Company Hearing Exhibit 1 at 2 n.2.

[102] Weaver Hearing Testimony at 54.

[103] Weaver Direct Testimony at 17; Karrasch Direct Testimony at 10-12.

[104] Karrasch Hearing Testimony at 70-73.

[105] *Id.* at 82.

[106] *Id.* at 71.

[107] *See* Kentucky Power's Response to Post Hearing Data Request 7.

anticipated to create approximately 100-120 temporary jobs, although the majority of the work will take place in West Virginia.[108] Once the conversion is complete, Kentucky Power anticipates requiring between 20 and 35 employees to operate Big Sandy Unit 1.[109] Finally, the conversion of Big Sandy Unit 1 to a natural gas-fired generating unit will increase its net book value, and hence its taxable value, by more than 80% from $60.5 million to $110.7 million.[110] None of these benefits are available with the higher cost market option.

(f). Neither the Power Coordination Agreement nor the Company's Election to Participate in the PJM Capacity Market as an RPM Entity Can Serve as a Substitute for a Converted Big Sandy Unit 1.

The current three-member Power Coordination Agreement ("PCA") is not a substitute for Big Sandy Unit 1. The PCA is fundamentally different from the former pool arrangement. Under the former AEP-East Interconnection Agreement, the Company could rely, for a price, on its sister companies' generation for capacity and energy.[111] Under the PCA, by contrast, "there is no primary energy exchange between affiliate members as existed under the old pool ...."[112] Kentucky Power is now required to maintain sufficient capacity as a stand-alone company to meet its native demand requirements plus a reserve margin.[113] Thus, while the PCA *may* enable the Company to avoid certain PJM penalties in the event Kentucky Power were to lose one of its major units,[114] the PCA provides no benefits in terms of capacity planning or for purposes of obtaining required energy.[115] Stated otherwise, if this application were to be denied, Kentucky

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[108] *Id.*

[109] Wohnhas Hearing Testimony at 147-48.

[110] Kentucky Power's Response to Post Hearing Data Request 8.

[111] Weaver Hearing Testimony at 65.

[112] *Id.*

[113] *Id.* at 28-29.

[114] *Id.* at 28.

[115] *Id.* at 65.

Power would still be required to obtain a similar amount of additional capacity and energy to meet its capacity and energy obligations notwithstanding the existence of the PCA.[116]

Finally, Kentucky Power's participation as a Fixed Resource Requirement ("FRR") entity – as opposed to a Reliability Pricing Model ("RPM") entity – in the PJM Capacity Market likewise is unrelated to Kentucky Power's need for the capacity and energy that would be supplied by a converted Big Sandy Unit 1. Under the PCA, the determination of whether the members to the PCA will participate as FRR or RPM entities is made by an operating committee.[117] Mr. Pauley, President and Chief Operating Officer of Kentucky Power, is a member of the operating committee.[118] The operating committee annually determines whether it is in the best interest of the parties to the PCA to participate in the PJM Capacity Market as an RPM or FRR entity.[119] Among the benefits of participating as an FRR entity is that, at current capacity prices, the implied reserve margin for RPM entities approaches 20 percent, whereas the recent reserve margin for FRR entities has been approximately 15.7%.[120] Thus, as Company Witness Weaver explained in response to a question from Vice-Chairman Gardner:

> Q. So it's your testimony that if they were RPM, then the actual reserve margin would be higher or would be greater than what is required under the FRR?
>
> A. Based on where the auctions have cleared; yes, sir.[121]

3. <u>The Conversion of Big Sandy Unit 1 Will Not Result in Wasteful Duplication.</u>

In addition to confirming that Kentucky Power needs a converted Big Sandy Unit 1 to meet its capacity and energy requirements, the evidence in this case demonstrates that the Big

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[116] *Id.* at 29 ("It is not a situation where any one can be, as perhaps existed in the prior pool, capacity deficient. Each has to meet stand-alone requirements for capacity and energy.")

[117] *Id.* at 37.

[118] *Id.* at 42; Wohnhas Hearing Testimony at 135.

[119] Wohnhas Hearing Testimony at 135.

[120] Weaver Hearing Testimony at 29.

Sandy Unit 1 Conversion is a least cost alternative and hence will not result in wasteful duplication. Through the use of the Strategist® modeling tool, Kentucky Power compared the long-term relative CPW of the Big Sandy Unit 1 natural gas conversion against two alternatives:

- Option 2A – Retire Big Sandy Unit 1 in June 2015, replace with purchases of capacity and energy from the PJM Market for 10 years, and then construct new natural gas combustion turbine or combined cycle units.
- Option 2B – Retire Big Sandy Unit 1 in June 2015 and replace with bi-laterally purchased capacity and energy from the "best" response to the 250 MW RFP.[122]

The modeling showed that the CPW of the Big Sandy Unit 1 conversion was lower than Option 2A (the market alternative) by more than $133 million.[123] The modeling also showed that the CPW of the least cost proposal examined under Option 2B was lower than the Big Sandy Unit 1 conversion by $16.8 million, a mere 0.3% of the total cost over the full study period.[124] The 0.3% difference in CPW between the Big Sandy Unit 1 conversion and Option 2B is within the model's margin of error.[125] That is, there was no material difference in the CPW of the Big Sandy Unit 1 conversion and the least cost proposal examined under Option 2B. Both were a least cost alternative.

Because the Lateral RFP was not complete at the time the modeling was performed, Kentucky Power obtained indicative cost estimates from FERC-regulated pipeline companies for use in the modeling.[126] The Lateral RFP was subsequently completed and the winning bidder was notified on May 9, 2014.[127] With the actual cost information for the natural gas lateral

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[121] *Id.* at 30.

[122] Weaver Direct Testimony at 4.

[123] Exhibit SCW-1.

[124] *Id.*

[125] Weaver Direct Testimony at 15; Wohnhas Supplemental Testimony at 5-6.

[126] Wohnhas Supplemental Testimony at 5; *See also* Kentucky Power's Response to Data Request Staff 1-1(a).

[127] Wohnhas Supplemental Testimony at 3.

available from the winning bidder, Kentucky Power re-evaluated the relative CPW of the Big Sandy Unit 1 conversion against Options 2A and 2B.[128] The cost of the natural gas lateral included in the winning bid decreased the CPW of the Big Sandy Unit 1 conversion by over $14 million.[129] As a result, the difference in CPW between the Big Sandy Unit 1 conversion and Option 2A (market) increased to over $148 million.[130] Similarly, the difference in CPW between the Big Sandy Unit 1 conversion and the least cost proposal examined under Option 2B decreased to less than $2.5 million, thereby reducing the non-material difference between the two alternatives by 85% and confirming that the Big Sandy Unit 1 conversion is the better least cost alternative.[131]

Kentucky Power's comprehensive modeling demonstrates that converting Big Sandy Unit 1 to natural gas is a least-cost alternative for the Company to meet its customers capacity and energy requirements in the face of emerging environmental regulations.

B. The Natural Gas Conversion of Big Sandy Unit 1 Is a Key Component of Kentucky Power's 2013 Integrated Resource Plan.

On December 20, 2013, Kentucky Power submitted its 2013 Integrated Resource Planning Report to the Commission in accordance with 807 KAR 5:058.[132] As shown in the 2013 IRP Report and in this case, the natural gas conversion of Big Sandy Unit 1 plays an critical role in Kentucky Power's resource planning.

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[128] *Id.* at 5-6.

[129] *Id.* at 5; *See also* Kentucky Power's Response to Post-Hearing Data Request 1, Attachment 1.

[130] *See* Kentucky Power's Response to Post-Hearing Data Request 1, Attachment 1.

[131] *Id.*; Wohnhas Supplemental Testimony at 5-6.

[132] *See* Case No. 2013-00475.

1. The 2013 IRP Report Includes the Natural Gas Conversion of Big Sandy Unit 1 as Part of the Company's Strategy for Providing an Adequate and Reliable Supply of Electricity at the Lowest Possible Cost.

Because of its relative economics, the natural gas conversion of Big Sandy Unit 1 was considered part of the "going-in" resource position of Kentucky Power in developing the preferred resource portfolio in the 2013 IRP Report.[133] On a CPW basis other alternatives to converting Big Sandy Unit 1 were either far more expensive (purchasing capacity and energy in the PJM market) or the equal in cost (the "best" bid in the 250 MW RFP).[134] Additionally, without replacing Big Sandy Unit 1, Kentucky Power will experience capacity and energy shortfalls, exposing its customers to the price volatility of the marketplace.[135]

As part of the IRP process, Kentucky Power is required to identify a "plan for providing adequate and reliable supply of electricity to meet forecasted electricity requirements at the lowest possible cost."[136] The modeling performed in preparing the 2013 IRP Report and in evaluating the conversion of Big Sandy Unit 1 demonstrate that without the conversion, Kentucky Power cannot adequately and reliably meet its forecasted electricity requirements at the lowest possible costs.[137]

2. Kentucky Power Will Evaluate the Resources Identified in the 2013 IRP Report in a Step-Wise Fashion.

Kentucky Power's 2013 IRP Report included, as part of the preferred portfolio, additional new resources over the planning period: a 58.5 MW biomass facility along with wind, solar, demand side management, and energy efficiency resources.[138] Kentucky Power has entered into

[133] 2013 IRP Report at 184-185.

[134] *See* Kentucky Power's Response to Post Hearing Data Request 1, Attachment 1.

[135] Kentucky Power Hearing Exhibit 1.

[136] 807 KAR 5:058, Section 8(1).

[137] *See* Kentucky Power Hearing Exhibit 1.

[138] 2013 IRP Report at 171.

a renewable energy purchase agreement ("REPA") for the output of the biomass facility, and that REPA was approved by the Commission in Case No. 2013-00144.[139] Kentucky Power intends to evaluate the continued reasonableness of all resource alternatives evaluated in the 2013 IRP Report in a step-wise fashion and will make appropriate resource decisions when appropriate.[140]

C. Kentucky Power's Plans for Furnishing Natural Gas Service to Big Sandy Unit 1 Are Reasonable and Confirm the Company's Plans for the Conversion of Big Sandy Unit 1 as the Better Least Cost Alternative.

The Company currently plans to secure natural gas for Big Sandy Unit 1 through purchases in the spot market.[141] The purchased natural gas will be transported to the site by Columbia Gas under the terms of an agreement currently being negotiated for the construction,[142] operation, and maintenance of a natural gas pipeline lateral ("Lateral") to provide natural gas to Big Sandy Unit 1 after the proposed conversion is complete.[143] Based on Big Sandy Unit 1 fuel supply requirements, the Company elected to secure firm transportation on the interstate mainline for the natural gas it purchases for Big Sandy Unit 1.[144]

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[139] Order, In The Matter Of: The Application Of Kentucky Power Company For: (1) The Grant of Certain Declaratory Relief, Or In The Alternative, The Approval Of The Terms And Conditions Of The Fourth Amendment to the Renewable Energy Purchase Agreement For Biomass Energy Resources Between The Company And ecoPower Generation-Hazard LLC; (2) Authorization To Enter Into The Fourth Amended Agreement; And (3) The Grant Of All Other Required Approvals and Relief, Case No. 2013-00144 (Ky. P.S.C. October 10, 2013).

[140] Weaver Hearing Testimony at 34-35.

[141] Walton Direct Testimony at 8-9.

[142] The Lateral will be constructed, owned, operated, and maintained by Columbia Gas and not Kentucky Power. *Id* at 9. The Company is not seeking a certificate of public convenience and necessity for the construction of the Lateral. Instead, under the terms of the contract with Columbia Gas that is being currently negotiated, Columbia Gas will be responsible for obtaining any necessary regulatory approvals. Kentucky Power's Response to Data Request Staff 1-1.

[143] Wohnhas Supplemental Testimony at 2.

[144] *Id.* at 4-5.

1. The Use of the Natural Gas Spot Market to Secure Natural Gas Will Provide the Company With the Flexibility to Obtain Natural Gas Supplies Only When Needed and Will Avoid Burdening Kentucky Power's Customers With the Costs Attendant With Long Term Contract Purchases.

As a natural gas-fired generating unit, Big Sandy Unit 1 is expected to operate as a "load following, intermediate duty cycle unit"[145] and not as a peaking unit.[146] As such, a converted Big Sandy Unit 1 will "operate in a similar fashion as it does as a coal-fired unit, albeit with a slightly lower capacity factor." The Company's modeling indicates the converted Big Sandy Unit 1 will have a nine percent to 15 percent capacity factor.[147]

The variable nature of Big Sandy's expected operation will require flexibility in the Company's natural gas supply arrangements.[148] In particular, the Company will require "instantaneous, hourly and daily flexibility in the delivery flow."[149] The daily spot market best provides the Company with the required flexibility to obtain natural gas when required for the periodic operation of Big Sandy Unit 1, while avoiding the additional costs associated with a term contract for the purchase of gas:

> If a term contract were executed, where a natural gas supplier commits to supply a specific volume of gas on a firm basis at a price pursuant to a predetermined pricing mechanism, ***Kentucky Power would be committed to pay for this volume of natural gas whether it is used or not.*** The anticipated periodic operation of BS1 does not lend itself to a term contract with fixed volume commitments.[150]

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[145] Weaver Hearing Testimony at 19.

[146] *Id.* at 18-19.

[147] *Id.* at 19. A peaking unit, by contrast, typically carries a one to two percent capacity factor. *Id.* at 18-19.

[148] Kentucky Power's Response to KPSC 1-3(a). There are no facilities for natural gas storage on or close to the Big Sandy plant site. Wohnhas Hearing Testimony at 127.

[149] Kentucky Power's Response to KPSC 1-3(a).

[150] *Id.* (emphasis supplied).

In addition, a fixed contract may subject the Company's customers to "market risk" in the event gas prices fall below those required under the term contract,[151] and may also carry a premium to the spot market price at the time of the contract.[152]

Kentucky Power retains the ability to enter into non-financial natural gas supply hedges "to protect customers from natural gas price volatility,"[153] and the Company will continue to evaluate the use of financial hedges for the same purpose.[154] In addition, because most gas-fired generating units owned by Kentucky Power's sister companies procure natural gas on the "spot market," the Fuel, Emissions, and Logistics unit of AEPSC has substantial experience in managing any price volatility associated with purchasing natural gas on the spot market.[155]

2. The Company's Proposed Firm Transportation Arrangements With Columbia Gas Are Both Prudent and Confirm Kentucky Power's Selection of the Conversion of Big Sandy Unit 1 as the Better Least Cost Alternative.

Kentucky Power anticipates entering into a contract with Columbia Gas that will provide firm transportation on the interstate mainline between the Company's natural gas supply and the Lateral.[156] The Columbia Gas contract provides Kentucky Power's customers with the advantages of firm transportation on the interstate mainline, and is the least cost firm transportation arrangement. [157] As such, firm transportation, and the terms of the Columbia Gas contract in particular, provide significant benefits to Kentucky Power's customers.

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[151] Walton Hearing Testimony at 105.

[152] Wohnhas Hearing Testimony at 154. Similarly, the Company believes it can mitigate the risks associated with the circumstances giving rise to the proceedings in Case No. 2014-00078, *In The Matter Of: An Investigation Into Duke Energy Kentucky's Accounting Sale Of Natural Gas Not Used In Its Combustion Turbines. Id.* at 160.

[153] Kentucky Power's Response to KPSC 1-3(b).

[154] *Id.*

[155] Wohnhas Hearing Testimony at 154-155.

[156] Wohnhas Supplemental Testimony at 2-3.

[157] *Id.* at 4.

First, the Columbia Gas contract maximizes the Company's ability to run Big Sandy when its generation is required. As an intermediate duty cycle unit, Big Sandy Unit 1 is likely to be needed at those times when, although an adequate natural gas supply is available on the spot market, the required transportation on the interstate mainline between the gas supply and Columbia Gas Lateral is constrained:

> Because under an interruptible arrangement, as you can imagine, you're only interrupted at the worst possible time. You know it's either the dead of the winter or the heat of the summer, you need, your customers need it, and you're interrupted.[158]

Firm transportation allows the Company to minimize the risk that transportation of the gas it purchases for Big Sandy Unit 1 will be curtailed when the gas is required for the operation of the unit.[159] Moreover, firm transportation "allow[s] Kentucky Power to have more certainty when dispatching the unit into PJM, particularly during high demand periods."[160] Thus, as Company Witness Walton explained, "from the standpoint of firm transportation, you know, I'm of the opinion, absolutely, that's what you want to do … [Firm transportation] is a cheap insurance policy."[161]

Second, a firm transportation arrangement protects the Company's customers against being forced to purchase energy on market at those times when energy prices are at their highest:

> And again, with the – with the profile of the unit, you know, January, February, June, July, August, those would be the periods you would expect, you know, your highest demand for the Big Sandy unit, we --- also the period of time where power prices in the open market would be the highest, and that's the exact time that you don't want to have your gas supply interrupted and have to be then at the mercy of the market.[162]

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[158] Walton Hearing Testimony at 108.

[159] *Id.* at 109 ("Someone else having firm and if I've got interruptible supply, when the time comes that someone's got to give, it's the – it's the one with the interruptible supply, and we wouldn't be subject to that.") *Id.* at 109-110.

[160] Wohnhas Supplemental Testimony at 5.

[161] Walton Hearing Testimony at 108-109.

[162] *Id.*

Again, firm transportation serves as cheap insurance.

Third, PJM currently is reviewing whether to downgrade for planning purposes the capacity value of gas generation units that lack firm transportation arrangements.[163] By securing firm transportation on the interstate mainline under the terms of the Columbia Gas contract being negotiated, the Company is acting prudently to ensure Kentucky Power will be credited the full capacity value for Big Sandy Unit 1 by PJM should PJM move forward with a "capacity penalty" for gas units that lack firm transportation.[164]

Fourth, the Columbia Gas contract being negotiated is the least cost proposal (net present value of the total cost[165]) received in response to the January 8, 2014 request for proposals assuming firm transportation on the interstate mainline as part of the analysis.[166] Columbia Gas remained the least cost proposal, assuming firm transportation, without regard to whether a nine percent capacity factor or a 15% capacity factor was used for Big Sandy Unit 1 in the analysis.[167] Moreover, when using a 15% capacity factor for Big Sandy Unit 1 the net present value of the Columbia Gas proposal, which provides ***firm transportation***, was only "7.4% greater than the total cost net present value of the least-cost proposal that would provide Kentucky Power with ***interruptible transportation*** on the Interstate mainline to the Lateral."[168] This relatively small differential between the cost of firm and interruptible transportation on the

[163] Wohnhas Supplemental Testimony at 5.

[164] *Id.*

[165] *Id.* at 4. The total cost evaluated included "the cost of the Lateral, the cost of transportation on the Interstate mainline from the supply source to the Lateral, and the differential in the cost of supply between varying supply points." *Id.* at 3.

[166] *Id.* at 4. An indicative offer for the firm transportation on the interstate mainline from the supply source to the Lateral was used for calculating the net present value of the total cost of the non-Columbia gas proposals. *Id.* The Columbia Gas response provided for firm transportation. *Id.*

[167] *Id.*

[168] *Id.*

interstate mainline confirms Mr. Walton's testimony that firm transportation was relatively inexpensive protection:

> A. I don't think in this case ... that there's significant enough difference between that firm and interruptible transportation portion that you wouldn't want that insurance. It's a cheap insurance policy.
>
> Q. [Vice Chairman Gardner] So one of the things that we all hear about, of course, is that how using natural gas for baseload or intermediate in this case is – you know, the risks on the system, and it – one of the ways that you-all are, in effect, proposing to solve that potential risk is just by making sure you have paid for firm transportation.
>
> A. That's correct.[169]

Fifth, and most importantly, the terms of the Columbia Gas contract confirm "that the conversion of Big Sandy Unit 1 to a natural gas fuel supply remains the better least-cost alternative for the disposition of the unit in response to the impending..." MATS requirements.[170] Indeed, the revised total costs for the Lateral obtained through the Columbia Gas' response to the Lateral RFP narrowed the difference between the comparative present worth of Big Sandy Unit 1 conversion and the best benchmark proposal from the 250 MW RFP – which already lay within the margin of error of the modeling – by 85%.[171] In short, an already good "deal" for Kentucky Power's customers became even better.

IV. CONCLUSION

The conversion of Big Sandy Unit 1 to a natural gas-fired generating unit affords the better least-cost alternative to providing Kentucky Power with the capacity and energy that otherwise would be required when the unit is retired as a coal-fired facility. The conversion also increases the Company's generation diversity and mitigates both energy market and counterparty

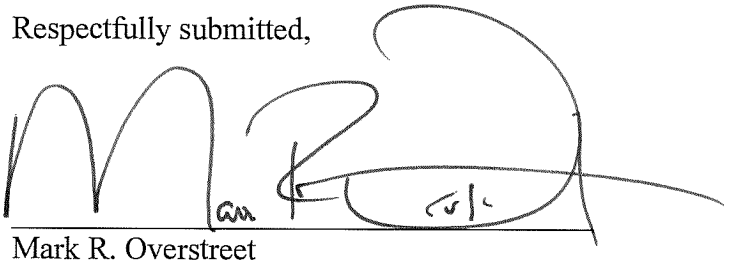
[169] Walton Hearing Testimony at 108-109.

[170] Wohnhas Supplemental Testimony at 1.

[171] *Id.* at 5-6.

risks, while providing important other benefits. As such, the conversion is required by the public convenience and necessity, and Kentucky Power respectfully requests that the Commission grant its application.

Respectfully submitted,



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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing was served by U.S. Mail, postage prepaid, upon the following parties, this 16th day of June, 2014.

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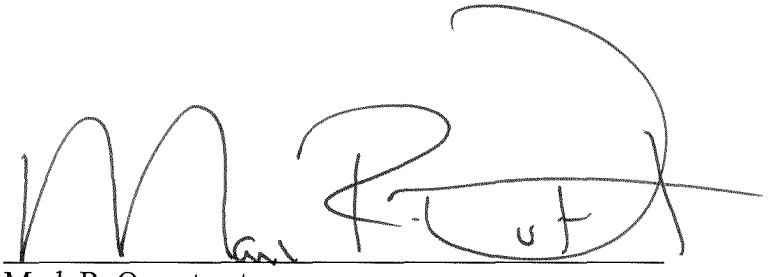

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