



EAST KENTUCKY POWER COOPERATIVE

RECEIVED

MAR 27 2006

PUBLIC SERVICE  
COMMISSION

March 27, 2006

HAND DELIVERED

Ms. Elizabeth O'Donnell  
Executive Director  
Public Service Commission  
211 Sower Boulevard  
Frankfort, KY 4060

*Case No. 2006-00132*

Dear Ms. O'Donnell:

Please find enclosed for filing with the Commission an original and ten copies of the Application of East Kentucky Power Cooperative, Inc., for a Certificate of Public Convenience and Necessity for the Construction of a Flue Gas Desulfurization System on Spurlock Power Station Unit 1.

Very truly yours,

Charles A. Lile  
Senior Corporate Counsel

Enclosures

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

**RECEIVED**

MAR 27 2006

PUBLIC SERVICE  
COMMISSION

**IN THE MATTER OF:**

**THE APPLICATION OF EAST KENTUCKY POWER )  
COOPERATIVE, INC FOR A CERTIFICATE OF )  
PUBLIC CONVENIENCE AND NECESSITY FOR THE )  
CONSTRUCTION OF A FLUE GAS DESULFURIZATION )  
SYSTEM ON SPURLOCK POWER STATION UNIT 1 )**

CASE NO. 2006- 00132

**APPLICATION**

1. Applicant, East Kentucky Power Cooperative, Inc., hereinafter referred to as "EKPC", Post Office Box 707, 4775 Lexington Road, Winchester, Kentucky 40392-0707, files this Application for a Certificate of Public Convenience and Necessity for the purchase and installation of a flue gas desulfurization ("scrubber") system at its H. L. Spurlock Generating Facility Unit 1 in Mason County, Kentucky ("Spurlock 1").

2. This Application is made pursuant to KRS §278.020 and related statutes, and 807 KAR 5:001 Sections 8, 9, and related sections.

3. A copy of Applicant's restated Articles of Incorporation and all amendments thereto were filed with the Public Service Commission (the "Commission") in PSC Case No. 90-197, the Application of EKPC for a Certificate of Public Convenience and Necessity to Construct Certain Steam Service Facilities in Mason County, Kentucky.

4. A copy of the resolution from Applicant's Board of Directors approving the filing of this application is filed herewith as Applicant's Exhibit 1.

5. Pursuant to KRS §278.020 and 807 KAR 5:001, Section 9, Applicant states that the power requirements of EKPC and its sixteen (16) member distribution cooperatives require the

construction of the proposed scrubber facilities, which are more fully described in the various exhibits filed with this Application. In further support of Applicant's contention that the public convenience and necessity requires the proposed facilities, Applicant submits the following:

(a) The need for the proposed scrubber facilities and the alternatives considered, are documented in the Prepared Testimony of Jeff Brandt, Applicant's Exhibit 7, and the Economic Evaluation included as Testimony Exhibit A to the Prepared Testimony of Frank Oliva, Applicant's Exhibit 5, which discuss and explain the justification for the proposed facilities;

(b) A description of the proposed scrubber facilities is included in Applicant's Exhibit 2. Maps showing the proposed scrubber site location at Spurlock Station are attached as Applicant's Exhibit 3.

(c) A Project Cost Estimate for the proposed facilities is included as Applicant's Exhibit 4.

6. The manner of financing proposed for the project, which will include the issuance of indebtedness to the United States of America through the Rural Utilities Service ("RUS"), is discussed in the Prepared Testimony of Frank Oliva, which is included as Applicant's Exhibit 5. Since U.S. Government financing is anticipated, which does not require Commission approval under KRS §278.300(10), no request for financing approval is made herein.

7. Applicant's plans for obtaining permits required for the proposed facilities are as follows: EKPC will submit to the Kentucky Natural Resources and Environmental Protection Cabinet ("KNREPC") Division for Air Quality requests to modify existing operating permits to reflect the installation of the proposed scrubber technologies at Spurlock Station. EKPC will also request modifications from the KNREPC Division of Water for wastewater discharges associated with this project.

8. The Prepared Testimony of Robert E. Hughes, Jr., concerning the regulatory requirements surrounding the need for the proposed scrubber facilities, is attached as Applicant's Exhibit 6.

9. The Prepared Testimony of Jeff Brandt, concerning the need and justification for the proposed facilities, the equipment and technology involved, the capital and operating costs of the proposed facilities, and the proposed construction schedule, is attached as Applicant's Exhibit 7.

10. The Prepared Testimony of Jerry Bordes, concerning the reasons why EKPC considered installing a sulfur dioxide scrubber for Spurlock Unit 2 at this time, and the impact of the scrubber system on the fuel requirements for the plant, is attached as Applicant's Exhibit 8.

WHEREFORE, the Applicant, East Kentucky Power Cooperative, Inc., requests that this Commission issue an order granting a Certificate of Public Convenience and Necessity for the construction of the Proposed Facilities.

Respectfully submitted,

  
DALE W. HENLEY

  
CHARLES A. LILE

ATTORNEYS FOR APPLICANT  
EAST KENTUCKY POWER  
COOPERATIVE, INC.  
P.O. BOX 707  
WINCHESTER, KY 40392-0707  
(859) 744-4812

(ScbrSpur1App)

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

**IN THE MATTER OF:**

**THE APPLICATION OF EAST KENTUCKY POWER )  
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC )  
CONVENIENCE AND NECESSITY FOR THE ) CASE NO. 2006- 00132  
CONSTRUCTION OF A FLUE GAS DESULFURIZATION )  
SYSTEM ON SPURLOCK POWER STATION UNIT 1 )**

**LIST OF EXHIBITS**

- |                  |  |
|------------------|--|
| <b>EXHIBIT 1</b> | <b>EKPC Board Resolution- January 10, 2006</b> |
| <b>EXHIBIT 2</b> | <b>Description of Scrubber Facilities</b>      |
| <b>EXHIBIT 3</b> | <b>Maps of Location of Facilities</b>          |
| <b>EXHIBIT 4</b> | <b>Project Cost Estimate</b>                   |
| <b>EXHIBIT 5</b> | <b>Testimony of Frank Oliva</b>                |
| <b>EXHIBIT 6</b> | <b>Testimony of Robert E. Hughes</b>           |
| <b>EXHIBIT 7</b> | <b>Testimony of Jeff Brandt</b>                |
| <b>EXHIBIT 8</b> | <b>Testimony of Jerry Bordes</b>               |

**FROM THE MINUTE BOOK OF PROCEEDINGS  
OF THE BOARD OF DIRECTORS OF  
EAST KENTUCKY POWER COOPERATIVE, INC.**

At a regular meeting of the Board of Directors of East Kentucky Power Cooperative, Inc. held at the Headquarters Building, 4775 Lexington Road, located in Winchester, Kentucky, on Tuesday, January 10, 2006, at 11:30 a. m., EST, the following business was transacted:

Limestone Scrubber for Unit No. 1 at Spurlock Power Station

After review and discussion of the applicable information, a motion was made by P. D. Depp, and, there being no further discussion, passed to approve the following:

**Whereas,** At the September 2005 East Kentucky Power Cooperative, Inc. ("EKPC") Board Meeting a new limestone scrubber was approved for Unit 2 at Spurlock Power Station ("Spurlock");

**Whereas,** Due to forecasted fuel and allowance prices, it was decided to proceed with an evaluation concerning a scrubber for Unit 1 at Spurlock, as well;

**Whereas,** An economic evaluation of the viability of the Spurlock Unit 1 scrubber focused on a comparison of the all-in cost of operating a scrubber burning high-sulfur coal versus burning low-sulfur compliance coal in the non-scrubbed unit;

**Whereas,** Factors included were projected fuel costs, scrubber capital costs, SO<sub>2</sub> allowance costs, maintenance costs, limestone costs, ash landfill costs, and other operating costs;

**Whereas,** An expected "worse case" project capital cost of \$145 million was used in the evaluation, and consists of the following:

Scrubber System (including Wet Electrostatic Precipitator)	\$107,000,000
Foundations	5,000,000
DCS Control System	400,000
New Stack	8,500,000
Electrical Upgrades	4,400,000
Engineering (Outside of Scrubber System)	2,000,000
Owner's Cost	2,600,000
Contingency (including IDC)	15,100,000
Total Estimated Cost	\$145,000,000

**Whereas,** The Wet Electrostatic Precipitator ("WESP") is included for SO<sub>3</sub> reduction, the new stack due to expected incompatibility of the existing stack with the design of

the new scrubber, and electrical upgrades are required due to the increased electrical loads not included in the original design of the unit;

**Whereas,** The project evaluation was run for a 30-year timeframe with Production's scrubber cost model used and expanded to a multi-year analysis by the Finance Division;

**Whereas,** In this analysis, compliance fuel without a scrubber was compared to scrubbing and using one of two non-compliance fuel blends with the result of the analysis indicating the price spread of coals and the cost of SO<sub>2</sub> allowances are the determining factors in deciding whether to add a scrubber to Spurlock Unit 1;

**Whereas,** The 30-year net present savings of scrubbing versus burning compliance coal is \$206 million for the 75/25 blend, with the expected average allowance cost for the 30-year period being over \$700;

**Whereas,** The expected first year of operation is 2009, with a savings in that year of over \$14 million;

**Whereas,** Using a similar engineering and construction timeframe for the Unit 1 Scrubber as the Unit 2 Scrubber of 33 months, puts the award date for the Unit 1 Scrubber Contract at March 2006;

**Whereas,** EKPC recently went through a competitive bidding process for the Spurlock Unit 2 Scrubber and in that process Alstom Power, Inc. ("Alstom") and Babcock & Wilcox ("B&W") prepared proposals for the project and Alstom was awarded the contract in September 2005;

**Whereas,** Since Alstom was low bidder in this competitive bidding process for the Spurlock Unit 2 Scrubber by several million dollars, negotiation of a contract with Alstom is recommended for the Unit 1 Scrubber;

**Whereas,** To meet the January 1, 2009 start-up schedule for the Spurlock Unit 1 Scrubber, Alstom needs to begin the process of engineering in January 2006 to develop a target price for presentation to EKPC for award of a contract in March 2006;

**Whereas,** It is recommended that a purchase order be written to Alstom in January for up to \$2 million to enable them to do preliminary engineering to develop a target price for a specified portion of this project;

**Whereas,** This project is not included in the 2006–2008 Budget and Work Plan, therefore, approval is requested to amend the Budget and Work Plan to include this project.

**Whereas,** This project should be funded with general funds, to be reimbursed with loan funds, should they become available;

**Whereas,** This project supports EKPC's key measure of supplying reliable and competitive energy; and

**Whereas,** The Fuel and Power Supply Committee and EKPC management recommend the approval to engineer, provide, and construct a new limestone scrubber at a cost of \$145 million and the approval to request a Certificate of Public Convenience and Necessity from the Kentucky Public Service Commission, and approval to negotiate a contract with Alstom Power, Inc. to provide and install the scrubber; now, therefore, be it


**Resolved,** That the EKPC Board hereby approves a new limestone scrubber for Spurlock Unit 1, with a wet precipitator, at a cost of \$145 million, and approves the request to the Kentucky Public Service Commission for a Certificate of Public Convenience and Necessity, and authorizes the EKPC President and Chief Executive Officer or his designee to execute all documents required to submit the application for the certificate;

**Resolved,** That approval is hereby given for the use of general funds for this project, subject to reimbursement from loan funds, when and if such funds become available; and

**Resolved,** That the EKPC Board also approves the negotiation of a contract to Alstom Power, Inc. to engineer, provide, and construct a new limestone scrubber, with a wet precipitator, on Unit 1 at Spurlock Power Station.

The foregoing is a true and exact copy of a resolution passed at a meeting called pursuant to proper notice at which a quorum was present and which now appears in the Minute Book of Proceedings of the Board of Directors of the Cooperative, and said resolution has not been rescinded or modified.

Witness my hand and seal this 10th day of January 2006.

  
A. L. Rosenberger, Secretary



## EXHIBIT 2

### FACILITY DESCRIPTION

The flue gas cleaning system proposed involves the use of a wet flue gas desulfurization (WFGD) system and a wet electrostatic precipitator (WESP) to reduce sulfur dioxide and total particulate emissions from the flue gas. The system includes a state-of-the art open spray tower design that has been proven at over 33,000 MW of power generation capacity.

The WFGD/WESP scope of supply includes an absorber island, flue gas system ductwork, limestone slurry storage and feed system, a primary dewatering system, a secondary dewatering system, a wet electrostatic precipitator, and various auxiliary systems and miscellaneous equipment. Foundations, electrical upgrades, stack, and system controls are also part of the project.

The absorber island includes absorbers with integral reaction tanks and internals (nozzles, headers, mist eliminators), recycle spray pumps, piping, suction isolation valves, reaction tank agitators, oxidation air lances, forced oxidation compressors with sound enclosures, emergency quench header and nozzles, and mist eliminator wash pumps.

The flue gas system ductwork includes inlet ductwork, absorber outlet duct to stack breaching, ductwork expansion joints, duct insulation and lagging, and duct support steel with base plates, side plates and stiffeners.

The limestone slurry storage and feed system includes a limestone slurry feed tank with agitator, limestone slurry feed pumps, and limestone slurry feed piping and valves.

The primary dewatering system includes hydrocyclone feed pumps and a primary dewatering hydrocyclone.

The secondary dewatering system includes rotary drum vacuum filters, vat agitators, an overflow tank and agitator, overflow tank pumps, vacuum pumps, and receivers.

The wet electrostatic precipitator includes an inlet nozzle, casings, cold roofs, outlet transitions, gas distribution devices and screens, collector systems, discharge electrode systems, SIR power supplies, controls, water re-circulation pumps, fresh water pumps, water re-circulation tanks, water filters, sprays and associated piping, gauges and valves, a  $Mg(OH)_2$  water neutralization system, weather enclosures with ventilation and heating, and insulator air flushing systems.

The auxiliary systems and miscellaneous equipment includes sump pumps, agitators, piping, pipe racks, and corrosion-resistant linings for tanks.

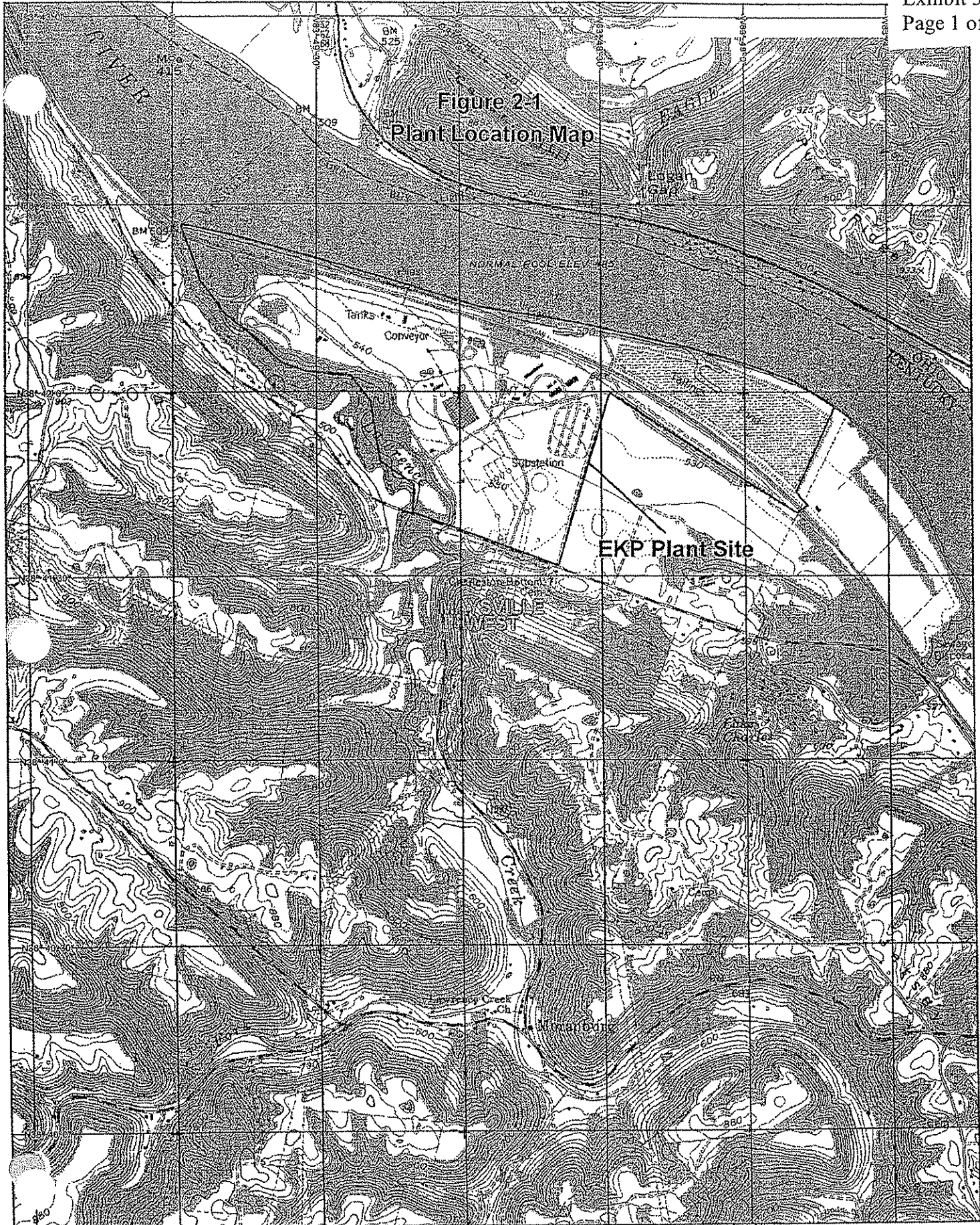
Other items include an absorber area elevator, HVAC, lifting equipment, lighting, communications system, lightning protection, fire protection, heat tracing, pipe insulation, safety showers and eyewash stations.

Electrical and controls includes field instrumentation, a control system, control logic, motors, transformers, motor control systems, power and control cables, grounding, and an uninterruptible power supply system.

The WFGD system utilizes a countercurrent, open spray tower FGD design with hollow cone spray nozzles. The spray tower also includes performance enhancement plates which minimize sneackage of flue gas at the periphery of the absorber. The flue gas enters the spray tower near the bottom through an inlet of nickel alloy material that resists the corrosion that can take place at the wet/dry interface. Once in the absorber, the hot flue gas is immediately quenched as it travels upward countercurrent to a continuous spray process slurry produced by multiple spray banks.

The recycle slurry (a 15-20 percent concentration slurry of calcium sulfate, calcium sulfite, unreacted alkali, inert materials, flyash and various dissolved materials) extracts the sulfur dioxide from the flue gas. Once in the liquid phase, the sulfur dioxide reacts with the dissolved alkali (calcium carbonate) to form dissolved calcium sulfite.

The system is designed to achieve 98% SO<sub>2</sub> removal efficiency without the use of organic additives at a maximum sulfur dioxide inlet loading of 42,668 lb/hr. The SO<sub>2</sub> removal efficiency is to be achieved without the use of the top spray level.







**EXHIBIT 4**

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

**IN THE MATTER OF:**

**THE APPLICATION OF EAST KENTUCKY POWER )  
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC )  
CONVENIENCE AND NECESSITY FOR THE ) CASE NO. 2006-00132  
CONSTRUCTION OF A FLUE GAS DESULFURIZATION )  
SYSTEM ON SPURLOCK POWER STATION UNIT 1 )**

**ESTIMATED PROJECT COST**

SCRUBBER	\$ 84,000,000
WET PRECIPITATOR	20,000,000
ELECTRICAL UPGRADE	5,400,000
FOUNDATIONS	5,000,000
TRANSFORMERS	2,000,000
STACK	8,500,000
OWNER'S COSTS	4,600,000
SUBTOTAL	129,500,000
CONTINGENCY (incl. IDC)	12,500,000
TOTAL	\$142,000,000

EXHIBIT 5

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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SYSTEM ON SPURLOCK POWER STATION UNIT 1 )

CASE NO. 2006- 00132

PREPARED TESTIMONY OF FRANK J. OLIVA  
ON BEHALF OF  
EAST KENTUCKY POWER COOPERATIVE, INC.

Q 1. Please state your name and address.

A1. My name is Frank J. Oliva, and my business address is P. O. Box 707,  
Winchester, Kentucky 40392-0707.

Q2. By whom are you employed and in what capacity?

A2. I am employed by East Kentucky Power Cooperative, Inc. ("EKPC"), as Manager  
of Finance, Planning and Risk Management.

Q3. As background for your testimony, please briefly describe your education  
background and work experience.

A3. I have a B.S. degree in Accounting from the University of Kentucky and a  
Masters degree in Business Administration from Xavier University. I have been  
employed by EKPC for 27 years. I served as General Accounting Supervisor  
from 1978 to 1985, Finance Manager from 1985 to 2002, and I have been in my

current position with EKPC since February 2002. My responsibilities include finance, risk management, and power supply planning for the cooperative.

**Q4.** What is the estimated construction cost of the proposed scrubber facility?

**A4.** The estimated cost of the scrubber project used in our analysis was \$145,000,000, which includes required electrical upgrades, foundations, and a wet precipitator. As indicated in Mr. Brandt's prepared testimony, this estimate has now been updated to \$142,000,000.

**Q5.** Has EKPC purchased any equipment or made any financial commitments to equipment for this project?

**A5.** EKPC has not purchased any equipment for the project. However, EKPC has made expenditures for preliminary engineering work for the project.

**Q6.** How will EKPC finance the construction of the proposed facilities?

**A6.** This facility is proposed to be financed by a RUS long-term guaranteed loan from the Federal Financing Bank.

**Q7.** Were you a participant in an evaluation which led to the decision by EKPC to construct a new limestone flue gas desulfurization ("scrubber") system at the Spurlock Generating Unit No. 1?

**A7.** Yes.

**Q8.** What was your role in that evaluation?

**A8.** I oversaw the economic analysis that was used to evaluate EKPC's SO<sub>2</sub> emissions compliance alternatives for Spurlock Unit No. 1 in future years.

**Q9.** What factors were considered in the economic analysis that was used to evaluate EKPC's SO<sub>2</sub> emissions compliance alternatives?



**A9.** The economic evaluation of the viability of the Spurlock Unit No. 1 scrubber focused on a comparison of the all-in cost of operating a scrubber burning high-sulphur coal versus burning low-sulphur compliance coal in the non-scrubbed unit. Factors considered included projected fuel costs, scrubber capital costs, SO<sub>2</sub> allowance costs, maintenance costs, limestone costs, ash landfill costs, and other operating costs.

The evaluation was run for the years 2009-2038. In addition to compliance coal, various higher-sulphur fuels were evaluated for use in the scrubber. As explained in more detail in Mr. Brandt's testimony, the most likely to be used non-compliance fuel was believed to be a blend of 75% Central Appalachian Coal and 25% Northern Appalachian high-sulphur coal. This was generally considered as the baseline non-compliance fuel. A base fuel forecast through the year 2038 was done by Energy Ventures Analysis (EVA).

As the data was evaluated, it became apparent that the results of the study were influenced greatly by two variables - (1) the price spread between compliance coal and non-compliance coal, and (2) the cost of SO<sub>2</sub> emission allowances.

The EVA projected price spread between compliance coal and the primary non-compliance coal averaged \$1.01 per MMBtu over the evaluation period, ranging from \$0.85 in 2009 to \$1.49 in 2038. In the analysis, SO<sub>2</sub> emission allowance prices were based on a forecast done by EVA.

**Q10.** What did that economic analysis show?

**A10.** Over the evaluation period, the net present value (NPV) savings of operating a scrubber utilizing a high-sulphur coal blend versus burning compliance coal in the

Spurlock No. 1 unit is projected to be about \$206 million. Operation of a scrubber is projected to reduce future fuel expense and SO<sub>2</sub> emission allowance expense by \$461 million and \$204 million, respectively on a NPV basis. These savings will be partially offset by increased operation and maintenance costs, as well as the fixed costs related to capital expenditures for the scrubber. See Oliva Testimony Exhibit A for a quantification of these assumptions, projected costs, and savings.

**Q11.** Does this analysis reflect the change in EPA regulations which will decrease the value of SO<sub>2</sub> allowances beginning in 2010?

**A11.** Yes. The analysis reflects the reductions in the value of such allowances, which will require two allowances for each ton of sulphur emissions in 2010, and 2.86 allowances for each ton of emissions in 2015. The analysis for 2009 reflects the current ratio of one allowance per ton of sulphur emissions. For the year 2009, the projected savings due to operating a scrubber are estimated to be \$14 million.

**Q12.** Does your evaluation support the decision to construct a scrubber for Spurlock Unit No. 1?

**A12.** Operation of a scrubber on the Spurlock Unit No. 1 appears to be the least-cost option when analyzed over the study period. Over the long-term, the price spread between compliance and non-compliance coal is projected to remain high enough to economically justify the scrubber operation.

**Q13.** Does this conclude your testimony?

**A13.** Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

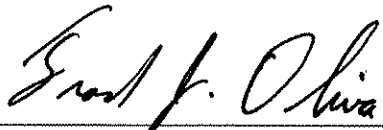
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AFFIDAVIT

STATE OF KENTUCKY )  
 )  
COUNTY OF CLARK )

Frank J. Oliva, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

  
\_\_\_\_\_  
Frank J. Oliva

Subscribed and sworn before me on this 22nd day of March, 2006.

  
\_\_\_\_\_  
Notary Public

My Commission expires:

January 27, 2008

**East Kentucky Power Cooperative  
 Spurlock Unit #1 Limestone Scrubber Study  
 Detailed Savings (Costs) Due to Scrubber Operation**

<b>Year 2009 - 2038                  Coal Blend of                  75% CAPP - Pike 4.5 lb. and                  25% NAP-OH - OH Strip - 7.0 lb.</b>
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Fuel Savings	\$460,666,869
Emission Allowance Savings	203,619,141
Operation Labor & Benefits for Scrubber	(39,728,156)
Maintenance	(49,635,081)
Fixed Costs Related to Scrubber Capital Expenditures	(256,139,152)
Limestone for Scrubber	(41,727,146)
Landfill Cost Including Ash Disposal	(20,837,525)
Energy Replacement	(49,805,824)
<b>Total Savings (Costs) Due to Scrubber Operation</b>	<b>\$206,413,126</b>

**Assumptions:**

Fuel comparisons are between the scenarios of Compliance Coal (CAPP - Pike 1.2 lb.) without scrubber operation versus burning Non-compliance Coal Blend of 75% (CAPP - Pike 4.5 lb.) and 25% (NAP-OH - OH Strip 7.0 lb.) with scrubber operation.

Fuel prices and SO2 allowance prices are from EVA projections.

**East Kentucky Power Cooperative  
Spurlock Unit #1 Limestone Scrubber Study  
Total Cost Analysis Including Net Present Value**

<u>Year</u>	<u>CAPP - Pike 1.2</u>	<u>Coal Blend of 75% CAPP - Pike 4.5 lb. and 25% NAP-OH - OH Strip - 7.0 lb.</u>
2009	\$77,613,759	\$63,344,356
2010	78,106,548	63,982,980
2011	75,216,275	65,623,136
2012	78,073,905	66,727,894
2013	79,197,689	68,057,394
2014	79,847,745	69,415,605
2015	82,023,828	71,043,536
2016	81,570,998	72,214,488
2017	79,711,622	73,260,673
2018	78,598,160	74,412,896
2019	78,063,326	74,990,283
2020	78,101,739	75,717,017
2021	78,624,605	76,488,741
2022	79,630,858	77,574,731
2023	82,101,816	79,091,179
2024	84,932,479	80,644,591
2025	88,001,095	82,225,155
2026	90,678,197	83,567,254
2027	93,387,125	84,910,180
2028	96,142,417	86,201,850
2029	98,929,713	87,519,802
2030	101,763,558	88,826,477
2031	104,644,046	90,122,301
2032	107,571,277	91,368,540
2033	110,559,804	92,630,681
2034	113,595,279	93,868,819
2035	116,692,264	95,084,631
2036	119,865,319	96,255,139
2037	123,100,107	97,414,487
2038	126,411,199	98,554,226
<b>Net Present Value =</b>	<b>\$1,735,954,084</b>	<b>\$1,529,540,961</b>
<b>Savings in NPV =</b>		<b>\$206,413,123</b>

**Spurlock Station - Unit #1**  
**Delivered Coal Forecast**  
**\$ / MMBtu**

Region:	CAPP Pike	3/4 CAPP 1/4 NAP-OH
Btu / lb:	12,000	11,875
#SO2 / MMBtu:	1.2	5.0
% Sulfur:	0.74	3.04
% Ash:	11%	11%
Transportation:	<u>TK/BG</u>	<u>Barge</u>
2009	2.360	1.507
2010	2.364	1.525
2011	2.365	1.595
2012	2.430	1.629
2013	2.470	1.676
2014	2.509	1.726
2015	2.531	1.780
2016	2.564	1.826
2017	2.605	1.872
2018	2.653	1.920
2019	2.707	1.944
2020	2.770	1.973
2021	2.841	2.003
2022	2.920	2.045
2023	3.004	2.100
2024	3.100	2.157
2025	3.203	2.215
2026	3.290	2.264
2027	3.377	2.313
2028	3.464	2.361
2029	3.551	2.410
2030	3.638	2.459
2031	3.725	2.508
2032	3.812	2.556
2033	3.899	2.605
2034	3.986	2.654
2035	4.073	2.703
2036	4.160	2.751
2037	4.247	2.800
2038	4.334	2.849

**Spurlock Unit #1 Scrubber Cost Analysis**  
**Cost Assumptions**

<u>Year</u>	<u>Operations</u>	<u>Maintenance</u>	<u>Lime Costs Per Ton</u>	<u>SO2 Allowances</u>	<u>Scrubber Landfill Costs Per Ton</u>	<u>Capacity Repl. Cost Per Kw</u>	<u>Ash Penalty for Boiler Maint. Per Ton</u>	<u>Ash Landfill Cost Per Ton</u>	<u>Limestone Cost Per Ton</u>	<u>Fixed Costs Rate %</u>
2009	\$1,364,000.00	\$1,687,000.00	\$53.50	\$1,203.00	\$3.50	\$190.00	\$0.144	\$3.50	\$12.00	10.88
2010	1,404,920.00	1,737,610.00	55.11	1,226.00	3.61	195.70	0.148	3.61	12.36	10.81
2011	1,447,067.60	1,789,738.30	56.76	1,020.00	3.71	201.57	0.153	3.71	12.73	10.73
2012	1,490,479.63	1,843,430.45	58.46	1,101.00	3.82	207.62	0.157	3.82	13.11	10.65
2013	1,535,194.02	1,898,733.36	60.21	1,107.00	3.94	213.85	0.162	3.94	13.51	10.56
2014	1,581,249.84	1,955,695.36	62.02	1,080.00	4.06	220.26	0.167	4.06	13.91	10.46
2015	1,628,687.33	2,014,366.22	63.88	1,188.00	4.18	226.87	0.172	4.18	14.33	10.36
2016	1,677,547.95	2,074,797.21	65.80	1,096.00	4.30	233.68	0.177	4.30	14.76	10.24
2017	1,727,874.39	2,137,041.13	67.77	892.00	4.43	240.69	0.182	4.43	15.20	10.12
2018	1,779,710.62	2,201,152.36	69.81	727.00	4.57	247.91	0.188	4.57	15.66	10.00
2019	1,833,101.94	2,267,186.93	71.90	592.00	4.70	255.34	0.194	4.70	16.13	9.86
2020	1,888,095.00	2,335,202.54	74.06	482.00	4.84	263.00	0.199	4.84	16.61	9.71
2021	1,944,737.85	2,405,258.62	76.28	392.00	4.99	270.89	0.205	4.99	17.11	9.55
2022	2,003,079.99	2,477,416.37	78.57	320.00	5.14	279.02	0.211	5.14	17.62	9.38
2023	2,063,172.38	2,551,738.87	80.92	342.00	5.29	287.39	0.218	5.29	18.15	9.20
2024	2,125,067.56	2,628,291.03	83.35	368.00	5.45	296.01	0.224	5.45	18.70	9.00
2025	2,188,819.58	2,707,139.76	85.85	398.00	5.62	304.89	0.231	5.62	19.26	8.79
2026	2,254,484.17	2,788,353.96	88.43	428.00	5.78	314.04	0.238	5.78	19.83	8.56
2027	2,322,118.70	2,872,004.57	91.08	460.00	5.96	323.46	0.245	5.96	20.43	8.32
2028	2,391,782.26	2,958,164.71	93.81	495.00	6.14	333.17	0.253	6.14	21.04	8.05
2029	2,463,535.72	3,046,909.65	96.63	532.00	6.32	343.16	0.260	6.32	21.67	7.77
2030	2,537,441.80	3,138,316.94	99.53	572.00	6.51	353.46	0.268	6.51	22.32	7.47
2031	2,613,565.05	3,232,466.45	102.51	615.00	6.71	364.06	0.276	6.71	22.99	7.15
2032	2,691,972.00	3,329,440.44	105.59	661.00	6.91	374.98	0.284	6.91	23.68	6.80
2033	2,772,731.16	3,429,323.66	108.75	711.00	7.11	386.23	0.293	7.11	24.39	6.43
2034	2,855,913.10	3,532,203.37	112.02	764.00	7.33	397.82	0.302	7.33	25.13	6.03
2035	2,941,590.49	3,638,169.47	115.38	821.00	7.55	409.75	0.311	7.55	25.88	5.60
2036	3,029,838.20	3,747,314.55	118.84	883.00	7.77	422.04	0.320	7.77	26.66	5.14
2037	3,120,733.35	3,859,733.99	122.40	949.00	8.01	434.71	0.329	8.01	27.46	4.64
2038	3,214,355.35	3,975,526.01	126.08	1,020.00	8.25	447.75	0.339	8.25	28.28	

**EXHIBIT 6**

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

**IN THE MATTER OF:**

**THE APPLICATION OF EAST KENTUCKY POWER )  
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC )  
CONVENIENCE AND NECESSITY FOR THE ) CASE NO. 2006- 00132  
CONSTRUCTION OF A FLUE GAS DESULFURIZATION )  
SYSTEM ON SPURLOCK POWER STATION UNIT 1 )**

**PREPARED TESTIMONY OF ROBERT E. HUGHES JR.  
ON BEHALF OF  
EAST KENTUCKY POWER COOPERATIVE, INC.**

Q1. Please state your name and address.

A1. My name is Robert E. Hughes Jr., and my business address is P. O. Box 707,  
Winchester, Kentucky 40392.

Q2. By whom are you employed and in what capacity?

A2. I am employed by East Kentucky Power Cooperative, Inc., ("EKPC") and I am  
Environmental Affairs Manager.

Q3. As background for your testimony, please briefly describe your educational  
background and work responsibilities at EKPC.

A3. I received a BS and MS from the University of Kentucky in 1970 & 1973  
respectively. I have been employed by EKPC since October 1973 and have occupied my  
current position within the EKPC organization since April 1975.

Q4. Does the EKPC Spurlock Generating Station Unit 1 ("Spurlock 1") already have a  
flue gas desulfurization ("scrubber") system?

A4. No, Spurlock 1 has always operated using a fuel that met sulfur emission  
requirements.



Q5. Is EKPC required to add a scrubber to Spurlock 1 in order to meet changing emissions limits?

A5. The operating permit for Spurlock 1 allows EKPC to emit sulfur dioxide at a rate of 6.0 lbs per million BTU heat input. However, EKPC cannot economically operate the unit at that level of emissions, since the allowance program of the Clean Air Act limited the allocation of SO<sub>2</sub> credits to an equivalent level of 1.2 lbs per million BTU heat input. The revised CAIR rules will further reduce that emissions level by approximately 60% in 2010. EKPC's evaluations show that the addition of sulfur emission controls to Spurlock 1 is the only efficient way to reach the lower level of emissions required by the revised regulations.

Q6. Will EKPC have the option to use compliance coal at Spurlock 1 under these new regulations?

A6. There is no compliance coal option for Spurlock 1 which is economically viable for EKPC. In this Application, EKPC has compared the costs of operating the scrubber to the costs of using compliance coal that would meet the current emission limits at Spurlock 1, along with purchases of amounts of sulfur allowances necessary to comply with the changing emission levels in the future. Coal that would meet the lowered 2010 emission limits is only available from the Powder River Basin. Mr. Brandt discusses EKPC's evaluation of the Powder River Basin Coal in his testimony. That evaluation showed that use of Powder River Basin coal would be no more economical over 30 years than operating the scrubber, while use of such coal would involve major cost and supply risks that would not be involved with the scrubber. The changes in the EPA regulations, while not mandating the addition of a scrubber at Spurlock 1, have the practical effect of

making the addition of the scrubber more economical than any compliance coal alternative that currently exists under the regulations.

Q7. Why is EKPC proposing to install the new scrubber at Spurlock 1 by 2009, if the changes in the EPA regulations do not take effect until 2010?

A7. EKPC's analysis, which Mr. Oliva discusses in his prepared testimony, has shown that, due to changes in the compliance coal market and other factors, it is more economical to install the scrubber in early 2009.

Q8. Describe the environmental benefits of the proposed scrubber project.

A8. The addition of the proposed equipment will allow EKPC to meet the current permit requirements and assist EKPC in meeting the SO<sub>2</sub> allowance program requirements of the Clean Air Act. This equipment will provide for the use of a greater variety of fuels. It will also provide for the reduction of mercury and further reductions of SO<sub>2</sub> required by newly adopted regulations of EPA on SO<sub>2</sub>, NO<sub>x</sub>, and mercury emissions.

Q9. EKPC is proposing to build a wet electrostatic precipitator as a part of this project. What is the function of the wet precipitator?

A9. The wet electrostatic precipitator is designed to reduce the colored flue gas plume resulting from the addition of the scrubber, which would otherwise be produced due to the combination of a cold-side Electrostatic Precipitator ("ESP"), Selective Catalytic Reduction for NO<sub>x</sub> ("SCR") and wet scrubber systems. This colored plume, composed of SO<sub>3</sub>, leads to the formation of a sulfuric acid mist. At other generating units with similar facilities, the SO<sub>3</sub> plume has proven to be a serious source of concern in local communities close to the plants, prompting property damage claims and complaints to

environmental agencies. This SO<sub>3</sub> plume would also adversely affect the opacity measurements on the unit.

Q10. What opacity standards apply to the Spurlock 1 Unit and how is opacity measured?

A10. The opacity standard is 20% on this unit, and relates to particulate matter in the plume. The opacity is measured for reporting purposes through the use of an in-stack continuous monitor. However, the Kentucky regulations require demonstrations of compliance and enforcement actions relating to opacity limits to be based upon visible readings taken of the flue gas as it exits the stack.

Q11. How would a colored plume affect the measurement of the flue gas opacity?

A11. On Spurlock 1, visible opacity readings are currently made just above the opening of the stack, where water vapor in the plume has not yet condensed. Without this “clear space”, the cloud of condensing water vapor in the plume would prevent a visible reading of opacity caused by particulate matter. The colored plume of SO<sub>3</sub> would be constantly visible in this space, so that visible readings would always indicate an opacity violation, even if the level of particulates did not exceed the limit.

Q12. How does the wet precipitator enable EKPC to comply with this opacity standard?

A12. The wet precipitator will control the SO<sub>3</sub> emissions, eliminating the colored plume and the sulfuric acid mist, and will preserve the ability to use visible readings to confirm opacity compliance on Spurlock 1.

Q13. Are SO<sub>3</sub> emissions limited on the Spurlock 1 Unit?

A13. SO<sub>3</sub> emissions are not currently limited in EKPC’s operating permit for Spurlock 1, but EPA is now requiring controls of sulfuric acid mist in permits for new generating plants. The EKPC Gilbert Unit has such a limitation in its operating permit, but its

circulating fluidized bed technology does not require a wet precipitator to control SO<sub>3</sub>. The Spurlock 1 permit is currently under review for a five year extension, and it is quite possible that sulfuric acid mist limits may be imposed as a condition for any renewal of the permit. Even if such limits are not included in the current renewal of the Spurlock 1 permit, it is almost certain that such limits will be required in the next renewal of the permit in 2009. This would be within the year that EKPC is proposing to start operation of the new scrubber system.

Q14. Explain how EKPC plans to obtain any permits required by this project?

A14. The proposed facilities will not require permits for construction from the Division for Air Quality since they are pollution reduction devices. A registration and modification of the Title V operating permit will be made to identify the equipment at the plant.

Q15. Does this conclude your testimony?

A15. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER )  
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC )  
CONVENIENCE AND NECESSITY FOR THE ) CASE NO. 2006- 00132  
CONSTRUCTION OF A FLUE GAS DESULFURIZATION )  
SYSTEM ON SPURLOCK POWER STATION UNIT 1 )

AFFIDAVIT

STATE OF KENTUCKY )  
 )  
COUNTY OF CLARK )

Robert E. Hughes, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

  
Robert E. Hughes

Subscribed and sworn before me on this 21<sup>st</sup> day of March, 2006.

  
Notary Public

My Commission expires: January 27, 2008

**EXHIBIT 7**

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

**IN THE MATTER OF:**

**THE APPLICATION OF EAST KENTUCKY POWER )  
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC )  
CONVENIENCE AND NECESSITY FOR THE ) CASE NO. 2006-00132  
CONSTRUCTION OF A FLUE GAS DESULFURIZATION )  
SYSTEM ON SPURLOCK POWER STATION UNIT 1 )**

**PREPARED TESTIMONY OF JEFF BRANDT  
ON BEHALF OF  
EAST KENTUCKY POWER COOPERATIVE, INC.**

Q1. Please state your name and address.

A1. My name is Jeff Brandt and my business address is PO Box 707,  
Winchester, Kentucky 40392-0707.

Q2. By whom are you employed and in what capacity?

A2. I am a Project Manager at East Kentucky Power Cooperative.

Q3. How long have you been employed at East Kentucky Power Cooperative?

A3. Since February 1993.

Q4. Have you testified before the Public Service Commission on prior  
occasions?

A4. Yes.

Q5. What are your duties and obligations to East Kentucky Power  
Cooperative?

A5. I am currently the project manager for the Spurlock Unit 2 Scrubber and  
Spurlock Generating Unit 4 Projects.

Q6. What is the purpose of your testimony?

A6. The purpose of my testimony is to outline how East Kentucky Power Cooperative, Inc. ("EKPC") made the decision to build a new Flue Gas Desulfurization ("FGD" or "scrubber") system on Spurlock Unit 1.

Q7. Why did EKPC begin to consider adding a scrubber system to Spurlock Unit 1?

A7. As Mr. Hughes discusses in more detail in his testimony, EKPC will effectively be required to install a scrubber on Spurlock Unit 1 by 2010, in order to comply with new federal regulations. In 2005, EKPC performed an evaluation and justification for building a new FGD system for Spurlock Unit 2. At that time, it became obvious that, due to recent increases in projected fuel and SO<sub>2</sub> allowance costs, the early addition of FGD systems on other EKPC coal-fired units could be cost effective. A team was formed to study such additions of FGD systems, and an evaluation of the addition of a scrubber to Spurlock Unit 1 was performed.

Q8. How was the evaluation conducted?

A8. The project evaluation was run for a 30-year timeframe. EKPC's existing scrubber cost model was used and was expanded to a multi-year analysis by the EKPC Finance Division. An independent model used by the Environmental Cost Containment Team, verified the findings of the Finance Division analysis.

In this analysis, the use of compliance fuel, without a scrubber, was compared to scrubbing and using one of two non-compliance fuels blends. The two non-compliance fuels consist of a blend of 75% CAPP (Central Appalachian)

and 25% NAP-OH (Northern Appalachian-Ohio) coal, and a blend of 60% CAPP coal, with 20% NAP-OH coal and 20% Petcoke. The results of the analysis indicate that the price spread of coals, and cost of SO<sub>2</sub> allowances, are the determining factors in deciding whether to add a scrubber to Spurlock Unit 1.

Q9. What were the results of this analysis?

A9. The expected average allowance cost for the 30-year period is over \$700, based on Energy Ventures Analysis, Inc. ("EVA") estimates. Using the EVA forecasted coal and allowance prices, the 30-year net present value savings of scrubbing, versus burning compliance coal, is \$206 million for the 75/25 blend, and \$254 million for the 60/20/20 blend using Petcoke. Currently the effect of burning Petcoke on Selective Catalytic Reduction ("SCR") catalyst is unknown, but there are concerns in the industry that Petcoke can seriously limit the lifespan of such catalyst. Spurlock Unit 1 is equipped with SCRs for NO<sub>x</sub> reduction. The costs associated with catalyst replacement due to burning Petcoke cannot be accurately estimated at this time, so they could not be included in the analysis. EKPC plans to monitor developments in regard to Petcoke use in plants with SCRs, but does not plan to use the Petcoke blend option in the proposed scrubber unless further evaluations resolve the technical concerns. EKPC has selected the 75/25 blend as the most feasible alternative at this time. Details of this analysis are attached to Frank Oliva's prepared testimony as Exhibit A.

Q10. You have discussed the comparison of scrubbing and the use of compliance coal for future compliance with new environmental regulations. Did the analysis indicate that an early installation of a scrubber for Spurlock Unit 1



would result in cost savings, compared to the current use of non-compliance coal in the unit?

A10. The earliest first year of operation of the Unit 1 Scrubber would be 2009. In that year, a savings of over \$14 million is projected, compared to the cost of coal that can currently be burned in that unit.. This means that for every month of delay of this project, EKPC could lose over \$1 million in potential savings.

Q11. Did EKPC evaluate the use of any other compliance coal for the Spurlock Unit 1?

A11. Powder River Basin Coal was evaluated and compared to the costs of scrubber operation using the base high sulfur coal option. For the first several years of the evaluation, the cost of the use of Powder River Basin coal was considerably higher than scrubbing high sulfur coal. For example, in 2009 the use of Powder River Basin coal would cost \$14 million more than scrubbing the high sulfur coal. In year 10 of the evaluation, the costs of the two options crossed, but the long term costs were very close. The 30-year net present value savings due to the use of Powder River Basin coal was \$205 million, virtually the same as the \$206 million savings for the high sulfur coal scrubbed option. However, EKPC has also determined that the use of Power River Basin coal would involve a much higher delivery risk, due to the long haul distances, the greater potential for weather impacts on shipments, and periodic shipment disruptions, and a much greater fire hazard risk at the plant, due to the high combustibility of the coal. Due to these significantly higher risks, which are inherent in the use of Power River Basin coal, and no demonstration of significant long term cost savings, EKPC

decided that the potential for problems with this coal was too high to justify its use.

Q12. EKPC specified a larger absorber module in the scrubber proposed for Spurlock Unit 2, to preserve the ability to produce wallboard quality gypsum in the future. Does the Spurlock Unit 1 scrubber design also provide for the future production of such gypsum?

A12. Yes. The Spurlock Unit 1 design will accommodate such retrofitting, should gypsum production prove economical in the future.

Q13. How was the scrubber contractor selected?

A13. Due to the timing of the decision to add the scrubber on Spurlock Unit 1, and the limited period in which cost savings from early installation could be achieved, EKPC intends to award a contract for the scrubber system portion of the project to Alstom Power, Inc. ("Alstom"). It was decided that soliciting bids for this contract would not be likely to result in a lower price, due to the fact that the Alstom bid for the Spurlock Unit 2 scrubber system was evaluated as the lowest competitive price, by several million dollars, only five months ago. Additionally, Stanley Consultants, EKPC's consulting engineer for the project, has advised EKPC that the other unsuccessful scrubber bidders for the Spurlock Unit 2 project would not be likely to bid for this work, or would not be qualified to bid, and that the two scrubbers should be designed and operated using common technology, design philosophy, control systems, and spare parts. Finally, Alstom already has personnel working at the plant, and can coordinate the two projects without additional mobilization costs.

Q14. What are the estimated costs for the Spurlock Unit 1 scrubber project?

A14. EKPC used an estimated total Project Cost of \$145 million in its analyses.

That estimate has now been finalized at \$142 million, based on the Alstom proposal price of \$104 million. The final project cost estimate includes the scrubber island (\$84 million), wet electrostatic precipitator (\$20 million), electrical upgrades (\$5.4 million), foundations (\$5 million), transformers (\$2 million), a new stack (\$8.5 million), Owner's costs (\$4.6 million), and contingency including interest during construction (\$12.5 million).

Q15. How do the costs of the Spurlock Unit 1 scrubber compare to the costs of the Spurlock Unit 2 scrubber?

A15. Alstom performed a cost comparison analysis between the Unit 1 and 2 scrubber systems. Unit 1 costs are \$9,700,000 lower than Unit 2 costs due to a reduced scope, such as no limestone preparation, no dewatering, no gypsum handling, and no new ID Fans. The Unit 1 scrubber cost is an additional \$7,500,000 lower due to the reduced size of the scrubber system compared to Unit 2. The comparison of the construction portions of the projects showed a reduction of approximately \$12,000,000 in the Unit 1 price compared to Unit 2.

EKPC has compared the Spurlock scrubber costs to industry costs for similar scrubber systems. The cost per kilowatt basis for the Spurlock scrubber systems, including wet electrostatic precipitators, is \$303/KW for Unit 1, and \$220/KW for Unit 2. The lower cost per KW for Unit 2 is due to economies of scale, and the costs for both projects are well within the range of reasonable costs for such systems. Available information from the Federal EPA indicates that wet

scrubber systems, without wet precipitators, for units the size of Spurlock Unit 1, range from \$250 to \$1,500 per KW, and for units the size of Spurlock Unit 2, costs range from \$100 to \$250 per KW. The cost per kilowatt basis for the Spurlock scrubber systems, without the wet electrostatic precipitators, is \$241/KW for Unit 1 and \$173/KW for Unit 2.

Q16. What are the estimated annual costs of operation of the Spurlock 1 scrubber?

A16. Annual operating costs in 2009, including operation and maintenance, capital, SO<sub>2</sub> allowances, landfill usage, energy, and boiler maintenance (due to fuel switching) is estimated to be \$26 million. These costs are estimated to rise slightly over the following several years, as shown on the attached Brandt Exhibit 1.

Q17. What is the schedule for the construction of this project?

A17. Approval for this project was received from the EKPC Board of Directors ("Board") on January 10, 2006. A 33-month schedule, and a January 2009 start date, require an award of the scrubber contract in April of 2006. Alstom has been released to perform preliminary engineering and submitted its Target Price for their scope of the project to EKPC on March 13, 2006. The EKPC Board is expected to approve the award of the contract at its April 2006 meeting, although Alstom would not be released to proceed with manufacturing the equipment until the Commission issues a certificate. Construction is expected to begin in the Summer of 2006, contingent on Commission approval, and continue through 2008. Commercial operation is expected in January of 2009.

Q18. Does this conclude your testimony?

A18. Yes.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION


IN THE MATTER OF:

THE APPLICATION OF EAST KENTUCKY POWER )  
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC )  
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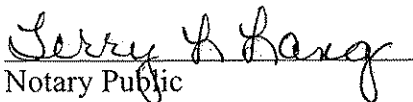
AFFIDAVIT

STATE OF KENTUCKY )  
 )  
COUNTY OF \_\_\_\_\_ )

Jeff Brandt, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

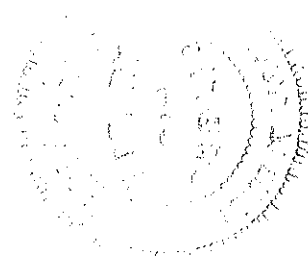
  
\_\_\_\_\_  
Jeff Brandt

Subscribed and sworn before me on this 22th day of March, 2006.

  
\_\_\_\_\_  
Notary Public

My Commission expires:

07/25/2009



**Brandt Prepared Testimony Exhibit 1**

Year	Operation	Maintenance	Capital	SO 2	Landfill	Energy	Reagent	Boiler	Total
				Allowances	Usage			Maintenance	
2009	\$1,364,000	\$1,687,000	\$15,776,000	\$1,443,431	\$1,111,140	\$1,710,000	\$1,432,632	\$1,645,236	\$26,169,439
2010	\$1,404,920	\$1,737,610	\$15,674,500	\$1,471,028	\$1,144,474	\$1,761,300	\$1,475,611	\$1,694,594	\$26,364,036
2011	\$1,447,068	\$1,789,738	\$15,558,500	\$1,223,856	\$1,178,808	\$1,814,139	\$1,519,879	\$1,745,431	\$26,277,421
2012	\$1,490,480	\$1,843,430	\$15,442,500	\$1,321,045	\$1,214,173	\$1,868,563	\$1,565,476	\$1,797,794	\$26,543,461
2013	\$1,535,194	\$1,898,733	\$15,312,000	\$1,328,244	\$1,250,598	\$1,924,620	\$1,612,440	\$1,851,728	\$26,713,558
2014	\$1,581,250	\$1,955,695	\$15,167,000	\$1,295,848	\$1,288,116	\$1,982,359	\$1,660,813	\$1,907,280	\$26,838,361
2015	\$1,628,687	\$2,014,366	\$15,022,000	\$1,425,433	\$1,326,759	\$2,041,829	\$1,710,638	\$1,964,498	\$27,134,211
2016	\$1,677,548	\$2,074,797	\$14,848,000	\$1,315,046	\$1,366,562	\$2,103,084	\$1,761,957	\$2,023,433	\$27,170,427
2017	\$1,727,874	\$2,137,041	\$14,674,000	\$1,070,274	\$1,407,559	\$2,166,177	\$1,814,815	\$2,084,136	\$27,081,878
2018	\$1,779,711	\$2,201,152	\$14,500,000	\$872,298	\$1,449,786	\$2,231,162	\$1,869,260	\$2,146,660	\$27,050,029
2019	\$1,833,102	\$2,267,187	\$14,297,000	\$710,317	\$1,493,279	\$2,298,097	\$1,925,338	\$2,211,060	\$27,035,380
2020	\$1,888,095	\$2,335,203	\$14,079,500	\$578,332	\$1,538,078	\$2,367,040	\$1,983,098	\$2,277,392	\$27,046,737
2021	\$1,944,738	\$2,405,259	\$13,847,500	\$470,345	\$1,584,220	\$2,438,051	\$2,042,591	\$2,345,714	\$27,078,417
2022	\$2,003,080	\$2,477,416	\$13,601,000	\$383,955	\$1,631,747	\$2,511,193	\$2,103,868	\$2,416,085	\$27,128,344
2023	\$2,063,172	\$2,551,739	\$13,340,000	\$410,352	\$1,680,699	\$2,586,528	\$2,166,984	\$2,488,568	\$27,288,043
2024	\$2,125,068	\$2,628,291	\$13,050,000	\$441,548	\$1,731,120	\$2,664,124	\$2,231,994	\$2,563,225	\$27,435,370
2025	\$2,188,820	\$2,707,140	\$12,745,500	\$477,544	\$1,783,054	\$2,744,048	\$2,298,954	\$2,640,122	\$27,585,180
2026	\$2,254,484	\$2,788,354	\$12,412,000	\$513,540	\$1,836,545	\$2,826,369	\$2,367,922	\$2,719,325	\$27,718,540
2027	\$2,322,119	\$2,872,005	\$12,064,000	\$551,935	\$1,891,642	\$2,911,161	\$2,438,960	\$2,800,905	\$27,852,726
2028	\$2,391,782	\$2,958,165	\$11,672,500	\$593,930	\$1,948,391	\$2,998,495	\$2,512,129	\$2,884,932	\$27,960,324
2029	\$2,463,536	\$3,046,910	\$11,266,500	\$638,325	\$2,006,843	\$3,088,450	\$2,587,493	\$2,971,480	\$28,069,536
2030	\$2,537,442	\$3,138,317	\$10,831,500	\$686,320	\$2,067,048	\$3,181,104	\$2,665,118	\$3,060,624	\$28,167,472
2031	\$2,613,565	\$3,232,466	\$10,367,500	\$737,913	\$2,129,059	\$3,276,537	\$2,745,071	\$3,152,443	\$28,254,555
2032	\$2,691,972	\$3,329,440	\$9,860,000	\$793,107	\$2,192,931	\$3,374,833	\$2,827,423	\$3,247,016	\$28,316,723
2033	\$2,772,731	\$3,429,324	\$9,323,500	\$853,100	\$2,258,719	\$3,476,078	\$2,912,246	\$3,344,427	\$28,370,125
2034	\$2,855,913	\$3,532,203	\$8,743,500	\$916,693	\$2,326,481	\$3,580,360	\$2,999,613	\$3,444,760	\$28,399,523
2035	\$2,941,590	\$3,638,169	\$8,120,000	\$985,084	\$2,396,275	\$3,687,771	\$3,089,602	\$3,548,103	\$28,406,595
2036	\$3,029,838	\$3,747,315	\$7,453,000	\$1,059,476	\$2,468,163	\$3,798,404	\$3,182,290	\$3,654,546	\$28,393,031
2037	\$3,120,733	\$3,859,734	\$6,728,000	\$1,138,666	\$2,542,208	\$3,912,356	\$3,277,758	\$3,764,182	\$28,343,639
2038	\$3,214,355	\$3,975,526	\$5,959,500	\$1,223,856	\$2,618,474	\$4,029,727	\$3,376,091	\$3,877,107	\$28,274,638

**EXHIBIT 8**

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

**IN THE MATTER OF:**

**THE APPLICATION OF EAST KENTUCKY POWER )  
COOPERATIVE, INC. FOR A CERTIFICATE OF PUBLIC )  
CONVENIENCE AND NECESSITY FOR THE ) CASE NO. 2006- 00132  
CONSTRUCTION OF A FLUE GAS DESULFURIZATION )  
SYSTEM ON SPURLOCK POWER STATION UNIT 1 )**

**PREPARED TESTIMONY OF JERRY BORDES  
ON BEHALF OF  
EAST KENTUCKY POWER COOPERATIVE, INC.**

Q1. Please state your name and address.

A1. My name is Jerry Bordes and my business address is P. O. Box 707,  
Winchester, Kentucky 40392.

Q2. By whom are you employed and in what capacity?

A2. I am employed by East Kentucky Power Cooperative, Inc., ("EKPC") as  
Production Services Manager in the Production Business Unit.

Q3. As background for your testimony, please briefly describe your educational  
background and work responsibilities at EKPC.

A3. I graduated from the Cumberland College with a Bachelor of Science Degree in  
Chemistry. I have held progressively responsible positions within the Production group,  
and I have occupied my current position with EKPC since 2001. I am responsible for the  
fuel procurement for the generating facilities owned by EKPC.

Q4. Were you involved in an evaluation of the addition of the flue gas desulfurization  
("scrubber") system at the EKPC Spurlock Generating Station Unit No. 1  
("Spurlock 1")?



A4. Yes, I participated in that evaluation from the standpoint of analyzing fuel choices that were available for Spurlock 1, with or without the scrubber, and the cost impacts of those fuel choices.

Q5. What different coals were used in the scrubber evaluation?

A5. The initial evaluation included a wide range of coals from compliance coal (<1.2 lbs. SO<sub>2</sub>/MMBtu) to Northern Appalachian and Illinois Basin high-sulfur coal (6.0 lbs. SO<sub>2</sub>/MMBtu).

Q6. How did the fuel choices affect the final decision to add the Spurlock 1 scrubber?

A6. The evaluation was influenced greatly by the price spread between compliance coal and non-compliance coal. Over the 30-year period of the evaluation this spread correlated to a total net present value fuel savings of approximately \$460,666,869.

Q7. What is the basis for the fuel costs used in Exhibit 1 to Jeff Brandt's prepared testimony, the projection of the Cost of Operation of the Proposed Facility?

A7. The fuel costs were based on a fuel study entitled "Updated Fuel, Emission Allowance, and Lime/Limestone Projections 2005-2015," dated June, 2005. The study was performed by Energy Ventures Analysis, Inc., ("EVA") of Arlington, Virginia.

Q8. What was the nature of your involvement in the fuel study performed by EVA?

A8. I was the lead person for East Kentucky Power Cooperative. I was responsible for supplying East Kentucky Power Cooperative data, coordinating the timing of the study with EVA, and ensuring that the results were made available to East Kentucky Power Cooperative staff to perform analysis of the operating cost of the proposed facility.

Q9. Does this conclude your testimony?

A9. Yes.

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

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THE APPLICATION OF EAST KENTUCKY POWER )  
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CONSTRUCTION OF A FLUE GAS DESULFURIZATION )  
SYSTEM ON SPURLOCK POWER STATION UNIT 1 )

AFFIDAVIT

STATE OF KENTUCKY )

COUNTY OF CLARK )

Jerry Bordes, being duly sworn, states that he has read the foregoing prepared testimony and that he would respond in the same manner to the questions if so asked upon taking the stand, and that the matters and things set forth therein are true and correct to the best of his knowledge, information and belief.

  
Jerry Bordes

Subscribed and sworn before me on this 22nd day of March, 2006.

  
Notary Public

My Commission expires:

January 27, 2008