

## RECEIVED

JAN 192007

PUBLIC SERVICE COMMISSION

January 19, 2007

HAND DELIVERED

Ms. Elizabeth O'Donnell Executive Director Public Service Commission 211 Sower Boulevard Frankfort, KY 40602

Re: PSC Case No. 2006-00564

Dear Ms. O'Donnell:

Please find enclosed for filing with the Commission in the above-referenced case an original and eight copies of the responses of East Kentucky Power Cooperative, Inc., to the Commission Staff Data Requests dated January 5, 2007.

Very truly yours,

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Charles A. Lile Senior Corporate Counsel

Enclosures

Cc: Parties of Record

#### COMMONWEALTH OF KENTUCKY

#### BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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JAN 192007 PUBLIC SERVICE COMMISSION

#### AN INVESTIGATION INTO EAST KENTUCKY POWER COOPERATIVE, INC.'S CONTINUED NEED FOR CERTIFICATED GENERATION

CASE NO. 2006-00564

#### ORDER

This matter is before the Commission on its own motion. By letter dated December 8, 2006, East Kentucky Power Cooperative, Inc. ("EKPC") formally advised the Commission that Warren Rural Electric Cooperative Corporation ("WRECC") had decided "to terminate its agreements with EKPC for future power supply and to return to a power supply arrangement with the Tennessee Valley Authority ["TVA"]." In an informal conference held on Friday, December 15, 2006, in the Commission's investigation into the financial condition of EKPC case,<sup>1</sup> representatives of EKPC

<sup>&</sup>lt;sup>1</sup> Case No. 2006-00455, An Investigation of the Financial Condition of East Kentucky Power Cooperative, Inc.

advised that WRECC's decision would likely implicate two pending proceedings before the Commission as well as three previously decided cases.<sup>2</sup>

The decision by WRECC to terminate its future power supply agreement with EKPC will undoubtedly have an impact upon EKPC's projected load. To gain an assurance that EKPC's certificated generation for the Spurlock No. 4 unit and the Smith Circulating Fluidized Bed ("CFB") unit and attendant Combustion Turbines ("CTs") are still needed, the Commission will establish this proceeding to evaluate the justification for these generating units in light of WRECC's decision. Mindful that construction may be proceeding on each of the previously certificated generation projects, the Commission is also issuing a procedural schedule and first data request to expedite this matter. The scope of this proceeding will be limited to EKPC's continued need for the certificated generation. The Commission has previously found the certificated projects to be the most reasonable and lowest-cost options for provisioning EKPC's distribution cooperatives with the power they require both now and in the future.

<sup>&</sup>lt;sup>2</sup> The two pending proceedings are Case No. 2006-00471, The 2006 Integrated Resource Plan of East Kentucky Power Cooperative, Inc. and Case No. 2006-00463, Notice of Intent of East Kentucky Power Cooperative, Inc. To Apply for a Certificate of Convenience and Necessity for the Smith-West Garrard 345 kV Transmission Line (not yet filed). The former proceedings are Case No. 2004-00423, Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity, and a Site Compatibility Certificate, for the Construction of a 278 MW (Nominal) Circulating Fluidized Bed Coal Fired Unit in Mason County, Kentucky; Case No. 2005-00053, Application of East Kentucky Power Cooperative, Inc. for a Certificate, for the Construction of a 278 MW (Nominal) Circulating Fluidized Bed Coal Fired Unit in Mason County, Kentucky; Case No. 2005-00053, Application of East Kentucky Power Cooperative, Inc. for a Certificate, for the Construction of a 278 MW (Nominal) Circulating Fluidized Bed Coal Fired Unit and Five 90 MW (Nominal) Combustion Turbines in Clark County, Kentucky; and Case No. 2005-00207, Application of East Kentucky Power Cooperative, Inc. for a Certificate of Public Convenience and Necessity for the Construction of a 161 kV Electric Transmission Line in Barren, Warren, Butler, and Ohio Counties, Kentucky.

On the basis of the foregoing, IT IS HEREBY ORDERED that:

1. This case is established to determine EKPC's continued need for the additional generation previously certificated by the Commission in the above-referenced cases.

2. The Attorney General and Gallatin Steel Company are hereby made parties to this proceeding.

3. The parties shall abide by the procedural schedule attached hereto as Appendix A and incorporated herein by reference.

4. EKPC shall file its responses to the data request attached hereto as Appendix B and incorporated herein by reference, in accordance with the procedural schedule.

Done at Frankfort, Kentucky, this 5<sup>th</sup> day of January, 2007.

By the Commission

ATTEST:

Executive Director

Case No. 2006-00564

### APPENDIX A

### APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE COMMISSION IN CASE NO. 2006-00564 DATED January 5, 2007

Responses to first discovery requests shall be filed and served on all parties no later than
Supplemental discovery requests shall be filed with the Commission and served on all parties no later than
Responses to supplemental discovery requests shall be filed and served on all parties no later than
Written request for a public hearing shall be filed with the Commission and served on all parties no later than
Public hearing is to begin at 9:00 a.m., Eastern Standard Time, in Hearing Room 1 of the Commission's offices at 211 Sower Boulevard, Frankfort, Kentucky
Briefs are to filed and served on all parties no later than

#### APPENDIX B

#### APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE COMMISSION IN CASE NO. 2006-00564 DATED January 5, 2007

#### COMMISSION STAFF'S INTIAL DATA REQUESTS TO EAST KENTUCKY POWER COOPERATIVE, INC.

East Kentucky Power Cooperative, Inc. ("EKPC") is requested, pursuant to 807 KAR 5:001, to file with the Commission the original and 8 copies of the following information, with a copy to all parties of record. The information requested herein is due on January 12, 2007. Each copy of the data requested should be placed in a bound volume with each item tabbed. When a number of sheets are required for an item, each sheet should be appropriately indexed, for example, Item 1(a), Sheet 2 of 6. Include with each response the name of the person who will be responsible for responding to questions relating to the information provided. Careful attention should be given to copied material to ensure that it is legible. Where information requested herein has been provided, in the format requested herein, reference may be made to the specific location of said information in responding to this information request.

1. Provide a detailed description of the current status of planning and construction, with an itemization of costs incurred and actual contractual commitments as of December 31, 2006, for each of the following units:

- a. Spurlock No. 4 278 MW Circulating Fluidized Bed ("CFB") unit.
- b. Smith Station 278 MW CFB unit.
- c. Smith Station 90 MW Combustion Turbines ("CTs") Nos. 8-12.

2. Does EKPC believe that its future load forecast supports the continued need for the Spurlock No. 4 unit and the Smith unit with attendant CTs in light of Warren Rural Electric Cooperative Corporation's ("WRECC") decision to terminate its future power supply agreement with EKPC?

a. If so, provide a detailed explanation supporting such belief.

b. If not, provide a detailed explanation of EKPC's future load forecast in light of WRECC's decision.

3. Has EKPC performed a cost/benefit analysis, from a ratepayer point of view, on the effects of delaying or canceling any of the proposed generation projects? Provide the assumptions, calculations, and conclusions from such an analysis.

4. Does EKPC have any contracts in place to sell excess capacity to offsystem customers, either during non-peak periods or in the case where load does not grow to expected levels?

5. Does building the new generating units certificated in Case Nos. 2004-00423 and 2005-00053 without the WRECC load allow EKPC to dispatch units more efficiently? If so, what would be the net effect on the heat rate to EKPC's system? What would be the net effect on the average marginal cost per kWh?

6. Does EKPC have enough transmission line capacity and interconnection capacity to sell large quantities (the output of an entire CFB generator) of power off system?

7. Has EKPC performed a feasibility study to determine whether the construction of all or some of the CTs and the coal unit at the Smith site and retiring some of the old coal units on its system is economically feasible?

-2-

- a. If no, explain why such a study is not necessary.
- b. If yes, provide the study.

8. What would EKPC's reserve margin be for 2007 through 2017 if all the proposed CTs and the coal units are constructed at the Smith Site? Explain how it was derived and provide all supporting calculations.

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### **COMMONWEALTH OF KENTUCKY**

### **BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

AN INVESTIGATION INTO EAST KENTUCKY	)	CASE NO.
POWER COOPERATIVE, INC.'S CONTINUED	)	2006-00564
NEED FOR CERTIFICATED GENERATION	)	



JAN 192007 PUBLIC SERVICE COMMISSION

### EAST KENTUCKY POWER COOPERATIVE, INC.

### PSC CASE 2006-00564 APPENDIX B INITIAL DATA REQUEST RESPONSE

## PUBLIC SERVICE COMMISSION'S REQUEST DATED 1/5/07

In response to an Order of the Public Service Commission's data request, East Kentucky Power Cooperative, Inc. ("EKPC") submits its responses to the questions contained therein.

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## PUBLIC SERVICE COMMISSION REQUEST DATED 1/5/07REQUEST 1RESPONSIBLE PERSON:James C. LambCOMPANY:East Kentucky Power Cooperative, Inc.

**<u>Request 1.</u>** Provide a detailed description of the current status of planning and construction, with an itemization of costs incurred and actual contractual commitments as of December 31, 2006, for each of the following units.

**<u>Request 1a.</u>** Spurlock No. 4 278 MW Circulating Fluidized Bed ("CFB") unit.

**Response 1a.** Construction began on Spurlock Unit 4 in June of 2006. This unit is scheduled to go online by April 2009. The engineering for this project is 95% completed. There have been 24 contracts awarded to date out of a total of 25 contracts. Ninety Nine percent of the contracts for this project have been awarded. The current project estimate is approximately 10% higher than the original estimate. An itemization table of the contracts awarded and the costs incurred has been included in this response.

Contrae Number		Contractor	Original Estimated Costs	Expenditure through 11/30/06
F1	TURBINE GENERATOR	GE	\$32,395,000	\$25,305,667
F6	FEEDWATER HEATERS	Yuba	756,000	1,122,645
F8	DEAERATOR	Ecodyne	200,000	280,040
F11	CONDENSER	TEI	1,600,000	2,144,100
F16	CIRCULATING WATER PUMPS	ITT Industries	630,000	494,200
F17	CONDENSATE PUMPS	Flowserve	245,000	323,505
F21	BOILER FEED PUMPS	Flowserve	1,774,000	1,163,698
F36	CONTROL SYSTEM	ABB	4,000,000	0
F46	FANS & MOTORS	Howden	2,668,000	2,488,048
F71	ASH HANDLING EQ ONLY	UCC	1,500,000	0
F101	ALLOY PIPING	BendTec	2,450,000	2,980,279
F131A	TRANSFORMERS - Large	Pauwels	4,323,600	310,055
F131B	TRANSFORMERS - Medium	Waukesha	301,400	301,400
F146	SWITCHGEAR	Pederson Power	4,273,000	3,231,934
F201	BOILER ISLAND	Alstom Power	180,500,000	99,595,054
F204	EMISSIONS MONITORING		300,000	0
F211	COAL HANDLING	DMW	8,650,000	1,627,200
F221	STACK / CHIMNEY	Pullman Power	5,700,000	78,000
F222	COOLING TOWER	Marley	2,454,000	1,890,238
F251	PILING	Richard Goettle	5,650,000	9,246,942
F261	SUBSTRUCTURE	Baker Concrete	12,900,000	12,541,144
F263	CIRCULATING WATER PIPE	Reynolds	6,000,000	9,042,518
F281	BALANCE OF PLANT	Cherne	72,000,000	11,635,787
F332	PAINTING		2,500,000	0
Subtotal	l		\$353,770,000	\$185,802,455
G300	ARCHITIECT ENGINEER	Stanley	16,270,000	7,607,244
	OWNERS COST		99,659,275	16,991,380
Project	Total		\$469,699,275	\$210,401,079

### Spurlock #4 Generation Project Costs thru 11/30/2006

**<u>Request 1b.</u>** Smith Station 278 CFB unit.

**Response 1b.**The application for the air permit was filed in October of 2006.EKPC is currently addressing questions concerning this application. The air permit isexpected to be issued by late summer of this year. The Rural Utilities Services ("RUS")requires that a Supplemental Environmental Impact Statement ("SEIS") be prepared for

this project to satisfy the National Environmental Policy Act. RUS has taken the lead in this process. A Finding of No Significant Impact ("FONSI") is expected by August of this year. Engineering for this project is approximately 30% completed. Construction is expected to begin in September of 2007 with an anticipated commercial operation date of August 2010. A total of 27 contracts are anticipated for this project. Nine contracts valued at \$318 million have been awarded to date which represents 51% of the total estimated project cost. An itemization table of the contracts awarded and the costs incurred has been included with this response.

Contrac Number		Contractor	Original Estimated Costs	Expenditure through 11/30/06
G1	TURBINE GENERATOR	General Electric	\$33,430,000	\$16,358,548
G3	SITE PREPARATION	Allen Company	1,000,000	
G6	FEEDWATER HEATERS	Yuba Heat Transf	,	
G8	DEAERATOR		200,000	
G11	CONDENSER	TEI	1,600,000	
G16	CIRCULATING WATER PUMPS		630,000	
G17	CONDENSATE PUMPS		245,000	
G21	BOILER FEED PUMPS	Flowserve Pump	1,774,000	
G36	CONTROL SYSTEM		4,000,000	
G46	FANS & MOTORS		2,668,000	
G71	ASH HANDLING EQ ONLY		1,500,000	
G101	ALLOY PIPING	BendTec	2,450,000	60,916
G131	TRANSFORMERS		4,625,000	
G146	SWITCHGEAR		4,273,000	
G201	BOILER ISLAND	Alstom Power	180,500,000	6,834,913
G204	EMISSIONS MONITORING		300,000	
G211	COAL HANDLING		33,025,000	
G221	STACK		4,500,000	
G222	COOLING TOWER	Marley	2,454,000	
G241	DAM & WATER STORAGE RES	ERVOIR	10,000,000	
G263	CIRCULATING WATER PIPE		4,000,000	
G264	ASH SILOS		3,000,000	
G261	SUBSTRUCTURE		13,000,000	
G281	BALANCE OF PLANT		88,320,000	_
G332	PAINTING		2,500,000	0
Subtotal			\$400,750,000	\$23,254,377
G300	ARCHITIECT ENGINEER	Stanley	19,270,000	3,620,748
OWNEI	RS COST	-	113,031,970	1,657,521
Project	l`otal		\$533,051,970	\$28,532,646

#### Smith #1 Generation Project Costs thru 11/30/2006

#### **<u>Request 1c.</u>** Smith Station 90 MW Combustion Turbines ("CTs") Nos. 8-12

**Response 1c.** The Contract East Kentucky Power Cooperative ("EKPC") had with General Electric Packaged Power, Inc. ("GE") was for five (5) LMS100 Simple Cycle Combustion Gas Turbine Generators. This contract was signed in March 2005 by EKPC with a milestone date of September 1, 2005 for "full notice to proceed" ("FNP"). FNP was based on EKPC having received the CPCN ("certificate") from the Commission (PSC Case No. 2005-00053). Because the certificate was not received until August 29, 2006, the contract was deemed null and void by GE.

Upon receipt of the certificate, negotiation with GE on equipment and installation price began. On November 10, 2006, GE notified EKPC that the contract price had increased 22%. Overall project cost has increased approximately 15%.

On December 8, 2006, Warren Rural Electric Cooperative Corporation gave notice that it would not be joining EKPC. EKPC has re-evaluated its need for both peaking and base load generation. Resource Planning modeling has shown the need for LMS100s has changed and that two (2) units are needed for the Winter of 2009. Negotiation with GE is ongoing to determine pricing for two (2) LMS100s to be installed in 2008 with commercial operation dates of January 2009.

As of December 31, 2006, EKPC total project expenditures are \$4,595,374, for design and engineering.

# PUBLIC SERVICE COMMISSION REQUEST DATED 1/5/07REQUEST 2RESPONSIBLE PERSON:James C. LambCOMPANY:East Kentucky Power Cooperative, Inc.

**Request 2.** Does EKPC believe that its future load forecast supports the continued need for the Spurlock No. 4 unit and the Smith unit with attendant CTs in light of Warren Rural Electric Cooperative Corporation's ("WRECC") decision to terminate its future power supply agreement with EKPC?

**<u>Request 2a.</u>** If so, provide a detailed explanation supporting such belief

**Response 2a.** EKPC believes that its future load forecast, without WRECC's load included, supports the need for Spurlock 4, Smith CFB 1, and two of the proposed Smith CTs. The following table, "EKPC Load Comparison," reports EKPC's winter peaks and energy requirements with and without WRECC. Since WRECC was expected to join EKPC in April 2008, the impact on the winter peak data shows up in 2009.

## PSC Request 2 Page 2 of 4

	Firm Winter	Total	<u> </u>
	Peak Demand	Requirements	Load
	With Warren	With Warren	Factor
Season	(MW)	(MWh)	(%)
2008	2,848	14,793,556	59%
2009	3,346	15,716,559	54%
2010	3,439	16,133,913	54%
2011	3,520	16,499,166	54%
2012	3,595	16,879,983	53%
2013	3,694	17,261,436	53%
2014	3,775	17,621,408	53%
2015	3,856	17,981,314	53%
2016	3,931	18,370,418	53%
2017	4,031	18,744,186	53%
2018	4,118	19,129,686	53%
2019	4,209	19,539,698	53%
2020	4,299	19,977,370	53%
2021	4,408	20,408,388	53%
2022	4,503	20,837,354	53%
2023	4,597	21,258,006	53%
2024	4,678	21,683,180	53%
2025	4,781	22,086,886	53%
2026	4,869	22,475,651	53%

## EKPC Load Comparison

	Firm Winter	Total	
	Peak Demand	Requirements	Load
	Without Warren	Without Warren	Factor
Season	(MW)	(MWh)	(%)
2008	2,848	13,399,136	54%
2009	2,938	13,769,433	54%
2010	3,021	14,138,674	53%
2011	3,094	14,461,695	53%
2012	3,162	14,799,211	53%
2013	3,251	15,140,383	53%
2014	3,326	15,465,143	53%
2015	3,398	15,787,203	53%
2016	3,468	16,138,823	53%
2017	3,560	16,477,304	53%
2018	3,638	16,823,792	53%
2019	3,722	17,204,211	53%
2020	3,804	17,601,161	53%
2021	3,904	17,985,946	53%
2022	3,992	18,377,759	53%
2023	4,078	18,760,769	53%
2024	4,153	19,148,972	53%
2025	4,248	19,519,545	52%
2026	4,329	19,874,324	52%

Note: 2008 includes Warren peaks and energy beginning April 1, 2008. The following table, "EKPC Load Requirements & Resources," reports EKPC's load requirements compared to existing capacity based on the 2006 Load Forecast Report, excluding WRECC's load requirements. The table does not include any future capacity additions, only units currently operating. By 2011 there is a need for 774 MW of new capacity for native load requirements, and reserves to meet a 12% reserve margin criteria.

	Pea Forec		Rese Requi		Capa Requi	·	Existing Capacity		Deficit/		
Year	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	
2007	2,773	2,213	333	266	3,106	2,479	2,754	2,543	352	(64)	
2008	2,848	2,274	342	273	3,190	2,547	2,754	2,543	436	4	
2009	2,938	2,342	353	281	3,291	2,623	2,726	2,515	565	108	
2010	3,021	2,404	362	288	3,383	2,692	2,726	2,515	657	177	
2011	3,094	2,457	371	295	3,465	2,752	2,691**	2,475**	774	277	
2012	3,162	2,506	379	301	3,541	2,807	2,681	2,465	860	342	
2013	3,251	2,569	390	308	3,641	2,877	2,681	2,465	960	412	
2014	3,326	2,622	399	315	3,725	2,937	2,681	2,465	1,044	472	
2015	3,398	2,676	408	321	3,806	2,997	2,681	2,465	1,125	532	
2016	3,468	2,727	416	327	3,884	3,054	2,681	2,465	1,203	589	
2017	3,560	2,792	427	335	3,987	3,127	2,681	2,465	1,306	662	
2018	3,638	2,849	437	342	4,075	3,191	2,681	2,465	1,394	726	
2019	3,722	2,912	447	349	4,169	3,261	2,681	2,465	1,488	796	
2020	3,804	2,970	456	356	4,260	3,326	2,681	2,465	1,579	861	

## EKPC Load Requirements & Resources (MW)

#### (Without Warren)

\*Based on a 12% reserve requirement.

\*\*EKPC purchases the output of Greenup Hydro under a contract that expires at the end of 2010.

The following graph, "EKPC Winter Peak Load Requirements & Existing Resources," illustrates the data in the table above. The top line is EKPC's winter peak plus 12% reserves.

PSC Request 2 Page 4 of 4



EKPC Winter Peak Load Requirements & Resources (Without Warren)

**Request 2b.** If not provide a detailed explanation of EKPC's future load forecast in light of WRECC's decision.

Response 2b. N/A

# PUBLIC SERVICE COMMISSION REQUEST DATED 1/5/07REQUEST 3RESPONSIBLE PERSON:James C. LambCOMPANY:East Kentucky Power Cooperative, Inc.

**<u>Request 3.</u>** Has EKPC performed a cost/benefit analysis, from a ratepayer point of view, on the effects of delaying or canceling any of the proposed generation projects?

**Response 3.** Immediately upon being notified by WRECC of their intention to withdraw, EKPC's Board of Directors requested an evaluation of the continued need for the proposed Smith capacity. EKPC began a re-evaluation of its power supply plan. Implicit in the analytics is a benefit/cost approach. An optimization analysis was performed to determine the least cost expansion plan without WRECC, with the primary concern being Smith CFB 1 and Smith CTs 8-12. The optimization performed was the same type described in the 2006 IRP on pages 8-52 and 8-53 (PSC Case No. 2006-00471). Based on the analysis, an expansion plan was developed to provide for EKPC's capacity needs. The most economical plan was to continue with the current schedule for Spurlock 4 commercial operation in 2009, to continue with the current schedule for Smith CFB 1 to make it available prior to the 2010-11 winter peak season, and to continue with Smith CTs 8 and 9 only. Smith CTs 10-12 were shifted to the 2012-14 timeframe, which avoids having excess capacity above the projected total requirements. The graph below entitled "EKPC Winter Peak Load Requirements & Resources: Updated Plan" is the

same as the graph included in the response to Request No. 2a, except that Spurlock 4, Smith CFB 1, and Smith CTs 8-9 are now included in the resources.

## EKPC Winter Peak Load Requirements & Resources: Updated Plan (Without Warren)



Includes Spurlock 4, Smith CFB 1, and Smith CTs 8-9

Contrast this with EKPC's expansion plan, including WRECC. Based on studies of baseload capacity needs discussed in the certificate filings designated as PSC Case No. 2004-00423 (Spurlock 4 filing) and PSC Case No. 2005-00053 (Smith capacity filing),

EKPC planned to build two 278 MW baseload units to provide for its own needs and WRECC's needs. In RFP No. 2004-01, EKPC requested this capacity to be available in two blocks, one in April 2008 for WRECC, and the other in December 2008 for EKPC existing system needs. The current schedules for Spurlock 4 and Smith CFB 1 are April 2009 and Summer/Fall 2010, respectively. Therefore the Spurlock 4 capacity should be online a few months later than EKPC had originally planned to add baseload capacity for the existing system. The combined capacity of Spurlock 4, Smith CFB 1 and Smith CTs 8-9 will meet EKPC's 2011 total capacity needs and do so in the most economical manner according to the analysis.

In the 2006 IRP the next baseload unit following Spurlock 4 and Smith CFB 1 was scheduled for Fall of 2012. The withdrawal of WRECC means that Smith CFB 1 is filling the baseload need of the Fall 2012 unit, but with no excess capacity. The updated plan includes a reserve margin for the 2010-11 winter peak season of not quite 12%, which is EKPC's target reserve margin. The updated plan does not provide for any excess capacity above EKPC's total requirements, and brings EKPC's resources up to a level that will reduce reliance on imported power. Smith CTs 10-12 have been shifted to the 2012-2014 time period, and will be needed then as peaking resources and to maintain adequate reserves.

## PUBLIC SERVICE COMMISSION REQUEST DATED 1/5/07REQUEST 4RESPONSIBLE PERSON:James C. LambCOMPANY:East Kentucky Power Cooperative, Inc.

**<u>Request 4.</u>** Does EKPC have any contracts in place to sell excess capacity to off-system customers, either during non-peak periods or in the case where load does not grow to expected levels?

**Response 4.** EKPC does not have any contracts in place to sell excess capacity off-system because it does not expect to have any significant amounts of surplus energy that could be sold in the forward market. However, EKPC plans to sell as much surplus energy in the wholesale market as is justified on an economical basis, while maintaining sufficient reserves. EKPC uses ACES Power Marketing to evaluate the potential for off-system sales during non-peak periods or times EKPC expects to have excess generation. EKPC dedicates the cheapest energy resources to its 16 members and prices wholesale sales to others with its most expensive resources.

# PUBLIC SERVICE COMMISSION REQUEST DATED 1/5/07REQUEST 5RESPONSIBLE PERSON:James C. LambCOMPANY:East Kentucky Power Cooperative, Inc.

Request 5.Does building the new generating units certificated in Case Nos.2004-00423 and 2005-00053 without the WRECC load allow EKPC to dispatch unitsmore efficiently? If so, what would be the net effect on the heat rate to EKPC's system?What would be the net effect on the average marginal cost per kWh?

**Response 5.** EKPC believes construction of the certificated units will lead to a more efficient dispatch of units. The graph below shows EKPC's projected system heat rate without WRECC and is based on EKPC's updated expansion plan that includes Spurlock 4, Smith CFB 1, and Smith CTs 8-9. The data points are calculated as the total fuel input (millions of Btu) divided by the net generation (MWh) for each year. The heat rate declines over time, indicating that bringing on new, more efficient units leads to higher system efficiency. The net impact of EKPC building to a 12% winter reserve margin and adding new, more efficient units will be to lower EKPC's marginal cost. High cost market purchases will be reduced and less efficient generation will be utilized less for native system needs, leading to a lowering of the marginal cost of power.

### PSC Request 5 Page 2 of 2



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## PUBLIC SERVICE COMMISSION REQUEST DATED 1/5/07REQUEST 6RESPONSIBLE PERSON:James C. LambCOMPANY:East Kentucky Power Cooperative, Inc.

Request 6.Does EKPC have enough transmission line capacity andinterconnection capacity to sell large quantities (the output of an entire CFB generator) ofpower off system?

**Response 6.** EKPC has transmission interconnections with five neighboring utilities – American Electric Power (AEP), Duke Energy/Cinergy (CIN), Dayton Power & Light (DPL), LG&E/KU (LGEE), and the Tennessee Valley Authority (TVA). The tables below list the contractual interconnected capacity between EKPC and each of these companies. The tables also list the calculated incremental transfer capability from EKPC to each company for both summer and winter conditions in 2010. These transfer capabilities were calculated using power flow analysis. The power flow program was used to determine the maximum allowable transfer between the two control areas which would not result in overloads of transmission facilities.

EKPC is planning to construct a new 345 kV line from the J.K. Smith site to a new substation called West Garrard. EKPC's power flow analysis indicates that this line is necessary to allow maximum output of the existing and future generating units at J.K. Smith. The tables below report the incremental transfer capability both with and without this proposed line.

Estimated Transfer Capability from EKPC to Interconnected Utilities in 2010											
Summer											
	Contractual	Calculated Transfer Capability without Smith-West	Calculated Transfer Capability with Smith-West								
Path	Contractual	Garrard Line	Garrard Line								
From EKPC to AEP	411 MW	281 MW	1593 MW								
From EKPC to CIN	301 MW	287 MW	2089 MW								
From EKPC to DPL	2511 MW	321 MW	2053 MW								
From EKPC to LGEE	6209 MW	273 MW	2600 MW								
From EKPC to TVA	1382 MW	259 MW	2461 MW								

Estimated Transfer Capability from EKPC to Interconnected Utilities in 2010-11 Winter											
Path	Contractual	Calculated Transfer Capability without Smith-West	Calculated Transfer Capability with Smith-West								
	Capacity	Garrard Line	Garrard Line								
From EKPC to AEP	461 MW	-283 MW	1117 MW								
From EKPC to CIN	331 MW	-287 MW	1428 MW								
From EKPC to DPL	3000 MW	-314 MW	1420 MW								
From EKPC to LGEE	7265 MW	-274 MW	1761 MW								
From EKPC to TVA	1662 MW	-265 MW	1435 MW								

Note that the negative values shown in the last table indicate that without the Smith-West Garrard 345 kV line, EKPC is not capable of transferring any power off-system by the winter of 2010-11. The completion of the JK Smith-West Garrard line will increase EKPC's export capability significantly in both summer and winter.

The calculated values listed in the tables above are based on certain assumptions regarding load levels, dispatch, transmission system topology, and transfer scenarios for EKPC and neighboring utilities. Varying these assumptions could either increase or decrease the values shown. However, EKPC believes those values to be indicative of the magnitude of transfer capability available when actual conditions are similar to those assumed.

# PUBLIC SERVICE COMMISSION REQUEST DATED 1/5/07REQUEST 7RESPONSIBLE PERSON:James C. LambCOMPANY:East Kentucky Power Cooperative, Inc.

Request 7.Has EKPC performed a feasibility study to determine whether theconstruction of all or some of the CTs and the coal unit at the Smith site and retiringsome of the old coal units on its system is economically feasible?

**<u>Request 7a.</u>** If no, explain why such a study is not necessary.

**Response 7a.** A study on construction of the Smith capacity and retirement of older units has not been performed. As the response to Request No. 2a indicates, EKPC will need Smith CFB1 and Smith CTs 8-9, in addition to all of its existing generating units, to meet system needs. While Dale Station is the oldest coal fired plant on the EKPC system it is remains economical to operate when compared to CTs or market power purchases. EKPC depends on its older coal fired units to meet power supply requirements and plans to continue to operate the units as long as they are economical and can meet regulatory requirements. At this time EKPC does not see a need to retire any of its older units. Retirement of older units would require immediate replacement of the retired capacity.

**Request 7b.** If yes, provide the study.

Response 7b. N/A

# PUBLIC SERVICE COMMISSION REQUEST DATED 1/5/07REQUEST 8RESPONSIBLE PERSON:James C. LambCOMPANY:East Kentucky Power Cooperative, Inc.

**<u>Request 8.</u>** What would EKPC's reserve margin be for 2007 through 2017 if all the proposed CTs and the coal units are constructed at the Smith Site? Explain how it was derived and provide all supporting calculations.

**Response 8.** The following table shows EKPC's Reserve Margins for the 2007-17 time period. It is assumed that all of the proposed Smith capacity previously approved by the Commission is constructed based on current projected schedules. The table shows that by building all of the approved Smith capacity, the reserve margin exceeds EKPC's winter target reserve margin of 12% for a several years beginning in 2010.

	Existing Capacity Capacity		Lan	dfill										
	Peak		Capacity		Addi	tions:	Addit	tions:	G	as	To		Rese	
Year	Fore M				Peaking MW		Baseload MW		Planned MW		Capacity MW		Margin %	
	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM
2007	2,773	2,213	2,754	2,543					3.2	3.2	2,757	2,546	-0.6%	15.0%
2008	2,848	2,274	2,754	2,543					3.2	3.2	2,760	2,549	-3.1%	12.1%
2009	2,938	2,342	2,726	2,515	194	166		278	3.2	3.2	2,930	2,969	-0.3%	26.8%
2010	3,021	2,404	2,726	2,515	291	249	278		3.2	3.2	3,502	3,221	15.9%	34.0%
2011	3,094	2,457	2,691	2,475			278	278	3.2	3.2	3,748	3,462	21.1%	40.9%
2012	3,162	2,506	2,681	2,465					3.2	3.2	3,741	3,455	18.3%	37.9%
2013	3,251	2,569	2,681	2,465					3.2	3.2	3,744	3,458	15.2%	34.6%
2014	3,326	2,622	2,681	2,465					3.2	3.2	3,748	3,462	12.7%	32.0%
2015	3,398	2,676	2,681	2,465	97	83			3.2	3.2	3,848	3,548	13.2%	32.6%
2016	3,468	2,727	2,681	2,465					3.2	3.2	3,851	3,551	11.0%	30.2%
2017	3,560	2,792	2,681	2,465			278	278	3.2	3.2	4,132	3,832	16.1%	37.3%

### **EKPC Reserve Margins Including Proposed Smith Capacity**

Notes:

Spurlock 4 commercial operation assumed Spring 2009

Smith CFB 1 commercial operation assumed Summer/Fall 2010

Smith CTs 8-9 commercial operation assumed Jan 2009

Smith CTs 10-12 commercial operation assumed Jan 2010

Additional capacity is added for 2015 and 2017 based on EKPC's updated expansion plan.

The following table shows EKPC's Reserve Margins for the 2007-17 time period based on EKPC's updated expansion plan. It is assumed that Smith CFB 1 and Smith CTs 8-9 are constructed, and Smith CTs 10-12 are delayed. Under this plan EKPC's winter reserve margin stays closer to the 12% target beginning in 2011.

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			Existin	5	Cap	Capacity Additions:								
	Pe	ak	Capacit	ty						Landfill		tal	Reserve	
Year	Forecast r MW		MW		Peaking MW		Baseload MW		Gas Planned MW		Capa M	-	Margin %	
	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM	WIN	SUM
2007	2,773	2,213	2,754	2,543					3.2	3.2	2,757	2,546	-0.6%	15.0%
2008	2,848	2,274	2,754	2,543					3.2	3.2	2,760	2,549	-3.1%	12.1%
2009	2,938	2,342	2,726	2,515	194	166		278	3.2	3.2	2,930	2,969	-0.3%	26.8%
2010	3,021	2,404	2,726	2,515			278		3.2	3.2	3,211	2,972	6.3%	23.6%
2011	3,094	2,457	2,691	2,475			278	278	3.2	3.2	3,457	3,213	11.7%	30.8%
2012	3,162	2,506	2,681	2,465	97	83			3.2	3.2	3,547	3,289	12.2%	31.2%
2013	3,251	2,569	2,681	2,465	109	92			3.2	3.2	3,659	3,384	12.6%	31.7%
2014	3,326	2,622	2,681	2,465	97	83			3.2	3.2	3,760	3,471	13.0%	32.4%
2015	3,398	2,676	2,681	2,465					3.2	3.2	3,763	3,474	10.7%	29.8%
2016	3,468	2,727	2,681	2,465	97	83			3.2	3.2	3,863	3,560	11.4%	30.6%
2017	3,560	2,792	2,681	2,465			278	278	3.2	3.2	4,144	3,841	16.4%	37.6%

#### **EKPC Reserve Margins Based on Updated Expansion Plan**

Notes:

Spurlock 4 commercial operation assumed Spring 2009

Smith CFB 1 commercial operation assumed Summer/Fall 2010

Smith CTs 8-9 commercial operation assumed Jan 2009

Smith CT 10 commercial operation assumed Fall 2011

Smith CT 11 commercial operation assumed Fall 2012

Smith CT 12 commercial operation assumed Fall 2013

Additional capacity is added for 2016 and 2017 based on EKPC's updated expansion plan.

Calculations:

Peak Forecast is taken from EKPC's 2006 Load Forecast Report, excluding WRECC.

*Existing Capacity* is the sum of the net capacity of EKPC's current resources, with adjustments as necessary when scrubbers come online.

- *Capacity Additions: Peaking* and *Capacity Additions: Baseload* indicate the timing and capacity of resource additions.
- *Landfill Gas Planned* is based on a planning assumption of adding a new landfill gas project each year until a total of approximately 50MW is reached.
- For 2007, Total Capacity = Existing Capacity + Capacity Additions: Peaking + Capacity Additions: Baseload + Landfill Gas Planned

For 2008 & later, *Total Capacity = Total Capacity* (previous yr) + *Capacity Additions: Peaking* (current yr) + *Capacity Additions: Baseload* (current yr) + *Landfill Gas Planned* (current yr)

*Reserve Margin* = ((*Total Capacity - Peak Forecast*) / *Peak Forecast*) x 100 to convert to percent.