E.ON U.S. LLC
State Regulation and Rates
220 West Main Street
PO Box 32010
Louisville, Kentucky 40232
www.eon-us.com

Rick E. Lovekamp
Manager - Regulatory Affairs
T 502-627-3780
F 502-627-3213
rick.lovekamp@eon-us.com

Elizabeth O'Donnell
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602-0615

November 20, 2007

RE: ***CONSIDERATION OF THE REQUIREMENTS OF THE FEDERAL ENERGY POLICY ACT OF 2005 REGARDING FUEL SOURCES AND FOSSIL FUEL GENERATION EFFICIENCY*** - **Adm Case 2007-00300**

Dear Ms. O'Donnell:

Enclosed please find an original and seven (7) copies of Kentucky Utilities Company ("KU") and Louisville Gas and Electric Company ("LG&E") Response to the First Data Request of Commission Staff dated November 9, 2007, in the above-referenced docket.

Should you have any questions concerning the enclosed, please do not hesitate to contact me.

Sincerely,

Rick E. Lovekamp

cc: Parties of Record

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

CONSIDERATION OF THE REQUIREMENTS OF THE FEDERAL ENERGY POLICY ACT OF 2005 REGARDING FUEL SOURCES AND FOSSIL FUEL GENERATION EFFICIENCY	)))))	CASE NO. 2007-00300

Response to First Data Request
Of Commission Staff
Dated November 9, 2007

FILED: NOVEMBER 20, 2007

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) **SS:**
COUNTY OF JEFFERSON)

The undersigned, **John N. Voyles, Jr.**, being duly sworn, deposes and says that he is Vice President Regulated Generation for E.ON U.S. Services, Inc., that he has personal knowledge of the matters set forth in the responses (Question Nos. 1, 2, 3, 4, and 6), and the answers contained therein are true and correct to the best of his information, knowledge and belief.

JOHN N. VOYLES, Jr.

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 20th day of November, 2007.

Notary Public (SEAL)

My Commission Expires:

November 9, 2010

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **Lonnie E. Bellar**, being duly sworn, deposes and says that he is Vice President State Regulation and Rates for E.ON U.S. Services, Inc., that he has personal knowledge of the matters set forth in the response (Question No. 5), and the answers contained therein are true and correct to the best of his information, knowledge and belief.

Lonnie E. Bellar

LONNIE E. BELLAR

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 20th day of November, 2007.

Tammy J. Elzy (SEAL)
Notary Public

My Commission Expires:
November 9, 2010

KENTUCKY UTILITIES COMPANY
LOUISVILLE GAS AND ELECTRIC COMPANY

ADMINISTRATIVE CASE NO. 2007-00300

Response to First Data Request of Commission Staff
Dated November 9, 2007

Question No. 1

Responding Witness: John N. Voyles, Jr.

Q-1. Provide the following for each unit

a. What was the heat rate (Btu/kWh) at the time of initial operation (both name plate and actual experience)?

b. What is the heat rate today?

c. Identify the actions that the company has taken that have impacted heat rate and identify whether the actions have had a positive (by lowering the heat rate) or negative impact (by increasing the heat rate).

A-1. a. The design heat rates were developed under an agreed optimal set of conditions (e.g. corrected to a "standard" set of conditions like ambient temperature, barometric pressure, ideal steam temperatures and pressures, etc. to allow contractual guarantee demonstrations) and cannot be reasonably compared to the current heat rates presented (See attached for design and initial heat rates)

b. See attached for current heat rates (These rates are derived from the Continuous Emission Monitor (CEM's) data and represents the full load heat rate of our units under a range of actual operating conditions).

c. The Companies have fulfilled numerous environmentally mandated actions that have had negative impacts on heat rate. These actions include, but are not limited to, the following additional equipment: Flue Gas Desulfurization units (FGD), Selective Catalytic Reduction Systems (SCR), low NOx burners, and by-product disposal installations and operations. Fuel switching also had negative heat rate impacts when the Companies used Powder River Basin coal from Wyoming due to a shortage of Eastern compliance coal from central Appalachia.

The Companies have also performed numerous actions, which have had a positive impact on maintaining heat rates. These actions include, but are not limited to, the following: FGD stack plume reheat elimination, control system modernizations (pneumatic and early electronic systems were replaced with modern DCS, etc.), steam turbine projects (including: last row turbine blade replacements using modern more efficient blade designs, original turbine steam seal packing replacements with modern more efficient retractable packing, feedwater heater replacements, and cooling tower modernizations (including fill replacements with state-of-the-art materials).

The Companies also perform numerous routine maintenance activities designed to maintain current performance. These activities include, but are not limited to, the following: turbine-generator overhauls, worn turbine blade replacements, boiler overhauls and repairs (including boiler tube replacements), coal mill maintenance, condenser re-tubing, feedwater heater re-tubing, etc.

This table provides the data requested in Questions 1a and 1b.

	Net Unit Heat Rate		
Unit Name	**Design[1]**	**Initial[2]**	**Current[3]**
Coal Units			
Brown 1	9,802	NA	11,014
Brown 2	9,855	NA	10,058
Brown 3	9,516	NA	10,459
Cane Run 4	9,695	9,960	10,805
Cane Run 5	9,694	9,927	10,508
Cane Run 6	9,407	9,896	10,202
Ghent 1	9,315	9,968	10,376
Ghent 2	9,488	10,410	10,020
Ghent 3	9,721	11,592	10,725
Ghent 4	9,721	10,748	10,198
Green River 3	11,300	NA	12,965
Green River 4	10,157	NA	11,009
Mill Creek 1	9,498	9,840	10,323
Mill Creek 2	9,498	9,845	10,722
Mill Creek 3	9,874	10,204	10,246
Mill Creek 4	9,825	10,353	10,600
Trimble Co 1	10,020	10,024	10,090
Tyrone 3	11,300	NA	13,011
Primary Combustion Turbines			
Brown 5	11,563	11,077	12,006
Brown 6	9,625	9,523	10,409
Brown 7	9,625	9,512	10,409
Brown 8	11,040	11,287	12,173
Brown 9	11,040	11,259	12,173
Brown 10	11,040	11,045	12,173
Brown 11	11,040	11,134	12,173
Paddys Run 13	9,503	8,955	9,815
Trimble Co 5	9,710	9,484	9,980
Trimble Co 6	9,710	9,562	9,980
Trimble Co 7	9,710	9,388	9,980
Trimble Co 8	9,710	9,423	9,980
Trimble Co 9	9,710	9,499	9,980
Trimble Co 10	9,710	9,376	9,980
Secondary Combustion Turbines			
Cane Run 11	NA	NA	16,117
Haefling 1	NA	NA	17,021
Haefling 2	NA	NA	17,021
Haefling 3	NA	NA	17,021
Paddys Run 11	NA	NA	15,479
Zorn 1	NA	NA	18,676
Mothballed Units			
Paddys Run 12	NA	NA	

(1) The "Design" column contains heat balance values. As such, they do not incorporate auxiliary equipment power requirements (e.g. FGD, SCR, etc).

(2) The "Initial" column contains first full year average values for steam units and initial performance test values (e.g. corrected to a set of "standard" conditions) for combustion turbines.

(3) The "Current" column contains full load operating heat rates that are derived from CEM's data.

NA Not Available

KENTUCKY UTILITIES COMPANY
LOUISVILLE GAS AND ELECTRIC COMPANY

ADMINISTRATIVE CASE NO. 2007-00300

Response to First Data Request of Commission Staff
Dated November 9, 2007

Question No. 2

Responding Witness: John N. Voyles, Jr.

Q-2. What is the average system-wide heat rate?

A-2. The average (2007 October year-to-date) heat rate for the KU/LG&E combined fossil fuel fleet is 10,610 Btu/kWh.

KENTUCKY UTILITIES COMPANY
LOUISVILLE GAS AND ELECTRIC COMPANY

ADMINISTRATIVE CASE NO. 2007-00300

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Question No. 3

Responding Witness: John N. Voyles, Jr.

Q-3. What technologies are available for increasing the efficiency by lowering the heat rate of installed fossil fuel generation? What are the costs and benefits associated with these technologies?

A-3. Please see response to Question 1c for technologies implemented by the Companies. Costs and benefits of any individual project related to heat rate improvement would be studied at the time they would be initially considered, and are thereby currently not available. To the extent that such projects are implemented in conjunction with the installation of additional environmental controls, the heat rate impacts of the pollution control technologies could ultimately mask the heat rate impacts of the projects. The costs and benefits of the replacement technologies are as provided in the Companies Integrated Resource Plan (IRP). The last filed IRP was in 2005 (Case 2005-00162). The next IRP is currently scheduled to be filed in April 2008.

KENTUCKY UTILITIES COMPANY
LOUISVILLE GAS AND ELECTRIC COMPANY

ADMINISTRATIVE CASE NO. 2007-00300

Response to First Data Request of Commission Staff
Dated November 9, 2007

Question No. 4

Responding Witness: John N. Voyles, Jr.

Q-4. What is a reasonable goal for heat rate improvement (lessening the heat rate) over a 10-year planning horizon for individual generating units and the company's fleet of fossil fuel generation?

A-4. Considering the aging fossil fuel fleet and the planned FGD retrofits on several units, maintaining the system average heat rate of today over the next 10 years is unrealistic. A more realistic goal would be a slight degradation in system average heat rate for the existing fossil fuel generating units over the next 10 years. One positive impact for the system heat rate will be the addition of Trimble County 2 unit due to its proposed unit efficiency.

KENTUCKY UTILITIES COMPANY
LOUISVILLE GAS AND ELECTRIC COMPANY

ADMINISTRATIVE CASE NO. 2007-00300

Response to First Data Request of Commission Staff
Dated November 9, 2007

Question No. 5

Responding Witness: Lonnie E. Bellar

Q-5. Although the Integrated Resource Planning and Certificate of Public Convenience and Necessity processes allow for consideration of generation efficiency initially, is there any Commission mandated process that provides for continued consideration of generation efficiency?

A-5. The mandated periodic management and operation audits provide the Commission a process to consider generation efficiency. KRS 278.255 and 807 KAR 5:013 allow the Commission to conduct management and operation audits of the utilities to investigate management effectiveness and operating efficiency. The prior management audits of the Companies included review of the plant operations, performance and system operations. Each prior audit included a recommendation on improving the heat rate performance of the generating units.

KENTUCKY UTILITIES COMPANY
LOUISVILLE GAS AND ELECTRIC COMPANY

ADMINISTRATIVE CASE NO. 2007-00300

Response to First Data Request of Commission Staff
Dated November 9, 2007

Question No. 6

Responding Witness: John N. Voyles, Jr.

Q-6. How does the company consider generation efficiency on an ongoing basis after the initial operation of a generating unit? Are annual or periodic studies performed? Explain in detail.

A-6. Unit heat rates are forecast, tracked, and reported. Annually, Generation Planning uses Continuous Emission Monitor (CEM's) data to produce actual and incremental heat rate curves for production cost modeling and generation forecasting. Monthly, official generating station reports are produced by each plant that document each unit's heat input, generation output, gross heat rate and net heat rate. All of these tools are used in analysis whenever the plants consider major investments for the generating units.

Additionally, summer and winter net dependable capacity tests are performed annually on each unit. Full load heat rates are captured during these tests. These test-derived values are then used to validate the CEM-derived curves referenced above.