COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

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In the Matter of:

AN EXAMINATION BY THE PUBLIC SERVICE COMMISSION OF THE APPLICATION OF THE FUEL ADJUSTMENT CLAUSE OF KENTUCKY UTILITIES COMPANY FROM NOVEMBER 1, 1980, TO APRIL 30, 1981	)))))	CASE NO. 8057-A

O R D E R

Pursuant to 807 KAR 5:056E, Section 1(11), the Commission issued its Order on July 6, 1981, scheduling a hearing and requesting for the period November 1, 1980, through April 30, 1981, monthly data showing unit performance; unit availability; analysis of coal costs; inventory analysis; the cost per KWH of gross and net generation; scheduled, actual, and forced outages; long-term contract performance; inventory adjustments; and a billing summary of sales to all jurisdictional companies. The Order also requested that Kentucky Utilities Company ("Company") be prepared to comment on the Commission's proposals to (1) revise the fuel purchases schedule and (2) require unit performance data as a part of the data filed in support of the monthly Fuel Adjustment Clause ("FAC") rate.

The Company provided the data requested by the Commission's Order of July 6, 1981, and following proper notice, a hearing was held on August 13, 1981. The record has been submitted for final determination by the Commission.

The sole intervenor in this case was the Consumer Protection Division of the Attorney General's Office ("AG"). The AG did not offer testimony and on cross-examination did not challenge the level of actual fuel cost included in the Company's monthly fuel filings.

In its Order issued on March 13, 1981, the Commission fixed the Company's base fuel cost at 15.33 mills per KWH. The Commission's review of the Company's monthly fuel clause filings shows that the actual fuel cost incurred for this six-month period ranged from a low of 15.33 mills in November 1980 to a high of 17.11 mills in April 1981. The Commission's review of the data provided in response to the Commission's Order of July 6, 1981, and the data on fuel purchases filed in support of the FAC rate disclosed that the actual fuel cost included in the monthly FAC filings is reasonable.

Based on an analysis of the entire record in this matter, the Commission concludes that during this period the Company has complied with 807 KAR 5:056E.

As mentioned previously, the Commission requested comments on its proposals to revise the fuel purchases schedule and to require data on unit performance as a part of the data filed in support of the monthly FAC rate. The Company responded that it could provide the data required in both of these schedules. It suggested that the Commission define as precisely as possible the terms used in each schedule and eliminate all duplication contained in these schedules. The Commission has carefully

reviewed the schedules which were contained in Appendices A and B of its Order issued on July 6, 1981. After giving due consideration to the Company's comments, the Commission has revised the operating statistics to eliminate any duplication, to define the terms used, and to provide specific instructions for completion of each schedule. The Commission concludes that the plant operating statistics contained in Appendix A to this Order should be required as a part of the information filed in support of the FAC rate. The Commission further concludes that the fuel purchases schedule contained in Appendix B should be required in lieu of the fuel purchases schedule currently being filed by the Company.

The Commission has considered fixing the date of the next six-month hearing at the conclusion of the current FAC proceeding. This change will allow all parties sufficient time to prepare and to give proper notice to their customers of the next hearing. Therefore, the Commission concludes that this change in procedure should be implemented. Further, the Commission concludes that Appendix C showing scheduled, actual, and forced outages for the period under review should be filed 30 days in advance of the date of the next hearing.

Based on the foregoing analysis and the entire record in this proceeding, the Commission finds that:

1. The Company has complied in all material respects with the requirements of 807 KAR 5:056E.

2. The Company should provide as a part of the monthly data filed in support of its FAC rate the information contained in Appendix A. The Commission further finds that this data should be provided for each month during the period May 1, through October 31, 1981, and Items 1(b), (c), (d), 3(a), and 5 for the period November 1, 1980, through April 30, 1981.

3. The Company should provide the data in Appendix B for the period November 1, 1980, through the most current month and on a prospective basis, should file this data in lieu of the current fuel purchases schedule.

4. The date for the next six-month hearing should be fixed at the conclusion of the current FAC proceeding.

5. Thirty days prior to the hearing date fixed herein the Company should file the information contained in Appendix C.

IT IS THEREFORE ORDERED that the charges collected by the Company through the FAC for the period November 1, 1980, through April 30, 1981, be and they hereby are approved.

IT IS FURTHER ORDERED that, effective with the date of this Order, the Company shall provide the information contained in Appendix A and B as a part of data filed in support of the monthly FAC rate.

IT IS FURTHER ORDERED that data for prior months, as set forth in findings of fact two and three, shall be provided on or before December 15, 1981.

IT IS FURTHER ORDERED that the next FAC hearing in Case No. 8057-B be and it hereby is set for February 18, 1982, at 9:00 a.m., Eastern Standard Time, at the Commission's offices in Frankfort, Kentucky.

IT IS FURTHER ORDERED that the Company shall, on or before January 18, 1982, file the data contained in Appendix C.

Done at Frankfort, Kentucky, this 25th day of November, 1981.

PUBLIC SERVICE COMMISSION

Chairman

Vice Chairman

Commissioner

ATTEST:

Secretary

DEFINITIONS AND INSTRUCTIONS FOR APPENDIX A - FORMAT 1

Line No.

1. b. Capacity (average load) - The power output of a unit over a specified interval of time (i.e., month, year, etc.), which is calculated by dividing the net generation of the unit by the number of hours the unit was operated.

   c. (1) Net Demonstrated Capability - The steady hourly output which a generating unit is expected to supply to the system (which is net of any power generated and used for auxiliaries and other station uses) as demonstrated by a test.

   (2) Four of the companies are currently using, or plan to change to, the test required by ECAR Document No. 4 - CRITERIA AND METHOD FOR THE UNIFORM RATING OF GENERATING EQUIPMENT. This test is acceptable for determining the Net Demonstrated Capability. If a company is currently changing to the ECAR test or does not plan to use the ECAR test to determine the Net Demonstrated Capability of a unit, then the company can report the Net Demonstrated Capability based on its own test. With the initial filing, the company shall provide a complete description of the test performed in a manner similar to ECAR Document #4 which is attached.

   d. Net Capability Factor - The ratio of the average load on a unit for a specified period of time (i.e., month, year, etc.) to the Net Demonstrated Capability, expressed as a percentage.

2. a. BTU's Consumed - The total BTU content of the fuel burned for electric generation.

   b. Gross Generation - The total amount of electric energy produced by the generating unit.

   c. Net Generation - Gross generation less kilowatt hours consumed out of gross generation for auxiliaries and other station uses.

   d. Heat Rate - A measure of generating station thermal efficiency, expressed in BTU's per net kilowatt hour. It is computed by dividing the BTU's consumed by the resulting net kilowatt hours generated.

3. a. Hours Unit Operated - The number of hours the unit was connected to the bus during a specified period (i.e., month, year, etc.), under a full or partial load.

   b. Hours Available - The number of hours a unit is available for operation, whether or not it is actually operated.

   c. Hours During the Period - Is the total number of hours in the period under consideration (i.e., month, year, etc.).

   d. Availability Factor - The percent of time the unit was available for operation, whether operated or not. It is computed by dividing the hours the unit was available by the hours during the period under consideration, expressed as a percentage.

4. a. Gross Generation - FAC Basis - The cost of generating one kilowatt hour of electricity based on gross generation. It is calculated by dividing the total fuel costs for the unit (or station when unit data is unavailable) by the resulting gross electric generation, expressed in cents per kilowatt hour.

   b. Net Generation - FAC Basis - The cost of generating one kilowatt hour of electricity based on net generation. It is calculated by dividing the total fuel costs for the unit (or station when unit data is not available) by the resulting net electric generation, expressed in cents per kilowatt hour.

5. a. (1) Actual Burn (12 months to date) - The number of tons of coal burned at each station for a 12-month period ending with the month of the report. Number of days supply at each station is calculated as follows:

$$\frac{\text{Number of Tons in Inventory}}{\text{(Actual Tons Burned} \div \text{Number of days in Year)}}$$

   (2) If the company maintains its inventory on a BTU basis, the number of days supply at each station is calculated as follows:

$$\frac{\text{Number of MMBTU in Inventory}}{\text{(Actual MMBTU Burned} \div \text{Number of Days in a Year)}}$$

   (3) If more than one coal pile is maintained at a station, then actual burn should be calculated for each of the coal piles.

APPENDIX A

Format 1

Company Name: _____

Station Name - Unit Number _____

For the Month of: _____

Line No.	Item Description
1.	Unit Performance:
	a. Capacity (name plate rating) (MW)
	b. Capacity (average load) (MW)
	c. Net Demonstrated Capability (MW)
	d. Net Capability Factor (L1b ÷ L1c) (%)
2.	Heat Rate:
	a. BTU's Consumed (MMBTU)
	b. Gross Generation (MWH)
	c. Net Generation (MWH)
	d. Heat Rate (L2a ÷ L2c) (BTU/KWH)
3.	Operating Availability:
	a. Hours Unit Operated
	b. Hours Available
	c. Hours During the Period
	d. Availability Factor (L3b ÷ L3c) (%)
4.	Cost per KWH:
	a. Gross Generation - FAC Basis (¢/KWH)
	b. Net Generation - FAC Basis (¢/KWH)
5.	Inventory Analysis:
	a. Number of Days Supply based on actual burn at the station

ECAR DOCUMENT NO. 4

CRITERIA AND METHOD FOR THE UNIFORM RATING OF GENERATING EQUIPMENT

The East Central Area Reliability Coordination Agreement provides for the establishment of principles and procedures regarding matters affecting the reliability of bulk power supply within ECAR. This document presents the criteria to be used for the uniform rating of generating equipment by ECAR members.

Definitions used in this document appear in the glossary attached hereto.

This document shall be reviewed annually and shall be resubmitted each year to the Executive Board for readoption as in the initial instance whether or not changes are to be recommended.

I. Basis for the Selection of a Method for Uniform Rating of Generating Equipment

Generating Capability to meet the system load and provide the required amount of reserves is necessary to assure service reliability. This generating capability must be accounted for in a uniform manner which assures the use of realistically attainable values when planning and operating the system or scheduling equipment maintenance.

To meet these requirements, criteria are herein established for determining the rating of generating equipment. These criteria define the methods by which ratings are to be established while recognizing the necessity of exercising judgment in their determination. The tests required are functional and do not require special instrumentation or procedures. They are designed to demonstrate that under expected operating conditions the rating claimed for the generating equipment can be obtained for eight continuous hours.

It is intended that the terms defined and the ratings established pursuant to this document shall be used by all members for the following ECAR purposes:

1. Determining operating and installed reserves
2. Scheduling operating capability
3. Scheduling maintenance
4. Preparing ECAR Daily Reports
5. Preparing reports authorized for release by ECAR to regulatory agencies, news media, and industry organizations

Net Demonstrated Capability will be the basic rating of generating equipment. Adjustments will be made to this rating to establish Net Seasonal Capability.

II. Method for the Uniform Rating of Generating Equipment

A. General

1. The Net Demonstrated Capability of all generating equipment will be determined by yearly tests. More frequent testing may be done if the member company so chooses.

2. The Net Demonstrated Capability may be determined separately for each generating unit in a power plant if the maximum net output of each unit is independent of the others. If the total capability of a plant is affected by the interaction of its parts, (such as common-header or combined cycle plants, units sharing cooling towers or ponds, etc.) a test of the common or interconnected system of parts will be performed to determine the Net Demonstrated Capability of the combined system. Each unit will be assigned a rating by apportioning the combined capability among the affected units.

3. Energy consumption by auxiliary facilities common to the entire plant (for example coal-handling or lighting) will be prorated among the appropriate units in the plant, and will represent the consumption normally experienced during the high-load period of the day.

4. The Net Demonstrated Capability will be determined at the power factor at which the generating equipment is normally expected to operate.

5. A steady output will be maintained to the extent possible during the test.

6. All equipment will be tested with all auxiliary equipment needed for normal operation in service.

B. Test Requirements

1. The Net Demonstrated Capability of generating equipment with steam turbines as the prime movers will be determined as follows:

   a. Output will be corrected to the turbine exhaust pressure normally attained in the winter months.

   b. The Net Demonstrated Capability of nuclear units will be determined taking into consideration the fuel management program of the unit and any restrictions imposed by governmental agencies.

   c. Test of coal fired and nuclear plants or units will be run for a period of eight continuous hours of which the average of any seven hours' results after adjustment for seasonal factors will be the rating.

   d. Test of oil and gas fired thermal plants or units will be run for a period of not less than four continuous hours of which the average result after adjustment for seasonal factors will be the rating.

   e. Thermal unit steam conditions will correspond to the operating standard established by the member for the unit or plant.

   f. The unit will be operated with the regularly used type and quality of fuel.

2. The Net Demonstrated Capability of generating equipment with combustion turbines, diesel or internal combustion engines as prime movers will be determined as follows:

   a. Units will be rated at winter time ambient temperature and at 14.7 psia atmospheric pressure.

   b. Tests of these units will be run for a period of not less than one hour. The test load after adjustment for seasonal factor will be the rating of the unit.

3. The Net Demonstrated Capability of combined cycle units will be determined as follows:

   a. Units will be rated at winter time ambient temperatures and at 14.7 psia atmospheric pressure.

   b. Tests of these units will be run for a period of not less than four hours. The MWHR/HR output after adjustment for seasonal factors will be the rating of the unit.

4. The Net Demonstrated Capability of conventional hydro units will be the MWHR/HR output that can be obtained for eight continuous hours. A two-hour test and suitable documentation (water flow, head, storage, etc.) to support an eight hour capability will determine the rating of the units.

5. The Net Demonstrated Capability of pumped hydro units will be the MWHR/HR output that can be obtained for eight continuous hours. A two-hour test and suitable documentation (head, water storage, etc.) to support an eight hour capability will determine the rating of the units.

6. New generating equipment and deactivated generating equipment returning to active status shall be tested prior to its inclusion in the member's Net Demonstrated Capability rating.

Until such time as tests are performed as provided for in this Document, the MWHR/HR net output actually generated by a new unit may be credited on a day-to-day basis to a system's capability for recordkeeping purposes and reserve accounting. Such capacity will be identified as New Unit Capability and will be limited to the extent that:

a. Tests have been conducted to prove the reliability of the controls, protection devices, and auxiliary equipment required for operation at that load level or higher.

b. The unit must be under the functional control of the system operator.

III. Reporting Net Demonstrated Capability

The Net Demonstrated Capability will be submitted to the Generation Facilities Panel on the ECAR form provided. Test data and computations will be included. Monthly seasonal adjustments for the generating unit, with the necessary supporting data, will be submitted at the same time to show Net Seasonal Capabilities.

The Generation Facilities Panel will determine if the rating and supporting data submitted conform to the requirements of this Document. A report of the Generation Facilities Panel's findings will be submitted to the Coordination Review Committee for approval. Upon approval by the Coordination Review Committee, the ECAR Executive Office will publish twice a year an official capability listing of each member.

IV. Miscellaneous

A. Daily Condition Derates will not be used to adjust annual test results.

B. The output of new units or units being returned to service from a deactivated status while in their start-up and testing phase and/or under the functional control of plant or construction personnel will be considered as Test Generation. No credit will be given to a system's load carrying or reserve capability for the energy generated while the unit is in this status.

GLOSSARY

The following is a glossary of terms used in this document:

1. Net Demonstrated Capability is the net winter rating of generating equipment. It is the steady hourly output which generating equipment is expected to supply to system load.

2. Seasonal Adjustment is the predicted variation from Net Demonstrated Capability of generating equipment due to seasonal factors which generally include variation in ambient temperature, condensing water availability and/or temperature, reservoir levels, scheduled reservoir discharge, river flow, head, etc.

3. Net Seasonal Capability is the Net Demonstrated Capability of generating equipment after seasonal adjustment. The Net Seasonal Capability will be declared on a monthly basis.

4. Condition Derating is the day-to-day variation from Net Seasonal Capability of generating equipment justified by such factors as turbine, boiler, and condenser deposits, quality of fuel, restricted fan, or pump output.

   (Outages of boilers of turbine-generators in common-header installation and outages of unit auxiliaries will be considered as partial outages and not as a Condition Derating.)

5. Deactivated Generation is generating equipment that is out of service and for which no Net Demonstrated Capability has been provided.

July 1, 1969
Revised February 7, 1974
Revised February 6, 1975
Revised February 1, 1978
Revised November 1, 1979

INSTRUCTIONS FOR APPENDIX B - FORMAT 1

1. Report the station name and the name(s) of the individual long-term contract or spot market suppliers as shown in Column (a).

2. Report the data in columns (b) through (p) for each supplier listed in column (a).

3. The weighted average BTU per pound to be reported in column (f) is computed by dividing total BTU purchased by total pounds purchased.

4. The weighted average number of MMBTU to be reported in column (g) is computed as follows:

   (2,000 x weighted average BTU per pound) ÷ 1,000,000

5. The weighted average price per ton to be reported in column (h) is computed by dividing the cost of all tons purchased by total tons purchased.

6. The cents per MMBTU and the weighted average cents per MMBTU is computed by dividing column (h) by column (g) and multiplying by 100.

7. The weighted average transportation cost per ton to be reported in column (j) is computed by dividing total transportation cost of all tons purchased by total tons purchased.

8. The cents per MMBTU and the weighted average cents per MMBTU reported in column (k) is computed by dividing column (j) by column (g) and multiplying by 100.

9. The delivered price per ton and the weighted average delivered price per ton to be reported in column (l) is the sum of column (h) and column (j).

10. The delivered cents per MMBTU and the weighted average delivered cents per MMBTU to be reported in column (m) is the sum of column (i) and column (k).

11. Note:

- SO_2 = Sulphur content (column (n))
- H_2O = Moisture content (column (p))
- Round the number of MMBTU and the weighted average number of MMBTU to the nearest one thousandth of an MMBTU (column (g)).
- Round the cents per MMBTU and the weighted average cents per MMBTU to the nearest one hundredth of a cent (columns (i), (k), and (m)).
- Round the tons purchased to the nearest ton (column (e)).
- Round the price per ton and the weighted average price per ton to the nearest cent (columns (h), (j), and (l)).
- Round the percent of SO_2, Ash and H_2O to the nearest one-hundredth of a percent (columns (n), (o), and (p)).
- Long-term Coal Contract is any coal contract that extends over a period in excess of one year from its effective date.

12. If the company purchases coal from its suppliers on a delivered cost basis (where transportation costs are not accounted for separately from delivered coal costs), then the company is not required to report data in columns (h), (i), (j), and (k) of Format 1.

Company Name
Analysis of Other Fuel Purchases
For the Month of _____

APPENDIX B
FORMAT 2

Fuel & Supplier	P B D U	P O C N	M T	Station Name	Gal. or Cu. Ft. Purchased	BTU Per Unit	Delivered Cost	¢ Per MMBTU	% SO_2
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Oil									
L Supplier									
M Supplier									
Total Oil									
Natural Gas									
Q Supplier									
R Supplier									
Total Natural Gas									

(b) Designated by Symbol
P = Producer
B = Broker
D = Distributor
U = Utility

(c) POCN = Purchase Order or Contract Number

(d) MT = Mode of Transportation
Designated by Symbol
R = Rail
B = Barge
T = Truck
P = Pipeline

APPENDIX C

Company Name: _____
Station Name - Unit Number: _____
For the Months of _____ Through _____

MONTH	MAINTENANCE				HOURS OF DURATION			REASON FOR DEVIATIONS FROM SCHEDULED MAINTENANCE OR REASON FOR FORCED OUTAGE AS APPROPRIATE
	Scheduled		Actual 1/					
	From	To	From	To	Scheduled	Forced	Actual	

1/ Report dates of forced outage in column headed Actual.

Company Name
Analysis of Coal Purchases
For the Month of _____

APPENDIX B
FORMAT 1

tion & Supplier	PBDU	POCN	MT	Tons Purchased	BTU Per Lb.	No. MMBTU Per Ton	F.O.B. Mine Price Per Ton	F.O.B. Mine ¢ Per MMBTU	Trans. Cost Per Ton	Trans. Cost ¢ Per MMBTU	Delivered Cost Per Ton	Delivered Cost ¢ Per MMBTU	% SO_2	Ash	% H_2O
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
tation Name															
Long Term Contract (LTC):															
X Supplier							$	¢	$	¢	$	¢			
Y Supplier															
Weighted Average (LTC)							$	¢	$	¢	$	¢			
Spot Market (SM):															
A Supplier							$	¢	$	¢	$	¢			
B Supplier															
Weighted Average (SM)							$	¢	$	¢	$	¢			
Station-Weighted Average							$	¢	$	¢	$	¢			
tation Name															
Long Term Contract (LTC):															
J Supplier							$	¢	$	¢	$	¢			
K Supplier															
Weighted Average (LTC)							$	¢	$	¢	$	¢			
Spot Market (SM):															
F Supplier							$	¢	$	¢	$	¢			
G Supplier															
Weighted Average (SM)							$	¢	$	¢	$	¢			
Station-Weighted Average							$	¢	$	¢	$	¢			
Total System-Weighted Average							$	¢	$	¢	$	¢			

(b) Designated by Symbol
P = Producer D = Distributor
B = Broker U = Utility

(c) POCN = Purchase Order or Contract Number

(d) MT = Mode of Transportation
Designated by Symbol
R = Rail T = Truck
B = Barge P = Pipeline