East Kentucky Power Cooperative, Inc.

P.S.C. KY NO. 29

CANCELS P.S.C. KY NO. 28

EAST KENTUCKY POWER COOPERATIVE, INC.

OF

WINCHESTER, KENTUCKY

RATES, RULES, AND REGULATIONS FOR FURNISHING

WHOLESALE POWER SERVICE

AT

VARIOUS LOCATIONS TO

RURAL ELECTRIC COOPERATIVE MEMBERS

THROUGHOUT KENTUCKY

FILED WITH THE PUBLIC SERVICE COMMISSION
OF KENTUCKY

ISSUED JUNE 7, 2005

EFFECTIVE FOR SERVICE RENDERED
ON AND AFTER JUNE 1, 2005

ISSUED BY EAST KENTUCKY POWER COOPERATIVE, INC.

BY

Roy M. Palk
President and Chief Executive Officer

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE
6/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)

By

Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC.

Wholesale Power Rate Schedule

Applicability

Applicable to all sections of this rate schedule and this rate schedule shall apply to each East Kentucky Power Cooperative, Inc. (hereinafter referred to as "EKPC" or the "Cooperative") load center separately.

Load Center Charges - Monthly

A. Metering Point Charge

1. Applicable to each metering point and to each substation

2. Charge: $125.00

B. Substation Charge

1. Applicable to each substation based on its size:

2. Charges:

1,000 - 2,999 kVa substation	$ 944.00
3,000 - 7,499 kVa substation	$2,373.00
7,500 - 14,999 kVa substation	$2,855.00
15,000 and over kVa substation	$4,605.00

Minimum Monthly Charge

The minimum monthly charge shall be equal to the Load Center Charges plus the minimum monthly charges for Section B and Section C. Load Center Charges cover metering point and substation charge.

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Fuel Adjustment

1. The fuel clause shall provide for periodic adjustment per kWh of sales when the unit cost of fuel [F(m) / S(m)] is above or below the base unit cost of $0.02025 per kWh [F(b) / S(b)]. The current monthly charges shall be increased or decreased by the product of the kWh furnished during the current month and the fuel adjustment rate for the preceding month where the fuel adjustment rate is defined below:

$$\text{Fuel Adjustment Rate} = \frac{F(m)}{S(m)} - \frac{F(b)}{S(b)}$$

Where F is the expense of fossil fuel in the base (b) and current (m) periods; and S is sales in the base (b) and current (m) periods, all defined below:

2. Fuel cost (F) shall be the most recent actual monthly cost of:

(a) Fossil fuel consumed in the utility's own plants, and the utility's share of fossil and nuclear fuel consumed in jointly owned or leased plants, plus the cost of fuel which would have been used in plants suffering forced generation and/or transmission outages, but less the cost of fuel related to substitute generation, plus

(b) The actual identifiable fossil and nuclear fuel costs associated with energy purchased for reasons other than identified in paragraph (c) below, but excluding the cost of fuel related to purchases to substitute the forced outages, plus

(c) The net energy cost of energy purchases, exclusive of capacity or demand charges (irrespective of the designation assigned to such transaction) when such energy is purchased on an economic dispatch basis. Included therein may be such costs as the charges for economy energy purchases and the charges as a result of scheduled outages, also such kinds of energy being purchased by the buyer to substitute for its own higher cost energy; and less

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Fuel Adjustment (con't.)

(d) The cost of fossil fuel recovered through inter-system sales including the fuel costs related to economy energy sales and other energy sold on an economic dispatch basis.

(e) All fuel costs shall be based on weighted average inventory costing.

3. Forced outages are all non-scheduled losses of generation or transmission which require (purchase of) substitute power for a continuous period in excess of six (6) hours. Where forced outages are not as a result of faulty equipment, faulty manufacture, faulty design, faulty installations, faulty operation, or faulty maintenance, but are Acts of God, riot, insurrection or acts of public enemy, the utility may, upon proper showing, with the approval of the Commission, include the fuel cost of substitute energy in the adjustment.

4. Sales (S) shall be kWh sold, excluding inter-system sales. Where for any reason, billed system sales cannot be coordinated with fuel costs for the billing period, sales may be equated to the sum of (i) generation, (ii) purchases, (iii) interchange in, less (iv) energy associated with pumped storage operations, less (v) inter-system sales referred to in subsection (2)(d) above, less (vi) total system losses. Utility-used energy shall not be excluded in the determination of sales (S).

5. The cost of fossil fuel shall include no items other than the invoice price of fuel less any cash or other discounts. The invoice price of fuel includes the cost of the fuel itself and necessary charges for transportation of the fuel from the point of acquisition to the unloading point, as listed in Account 151 of the FERC Uniform System of Accounts for Public Utilities and Licenses.

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Power Factor Adjustment

The member cooperative agrees to maintain a unity power factor as nearly as practicable at each load center at the time of the monthly peak demand for the load center. When the power factor is determined to be less than 90%, the monthly billing demand at the load center will be adjusted by multiplying the actual monthly billing demand by 90% and dividing this product by the actual power factor at the time of the monthly peak demand for the load center. For new load centers, the power factor penalty will not be applicable for the month of energization or the succeeding six (6) months. The demand rate applicable for power factor penalty billing is the lowest firm demand rate in Section A, B, C, E, or G.

Energy Curtailment and Outage Restoration Priorities

These tariffs are subject to the Energy Curtailment and Outage Restoration Priorities provisions of Administrative Case No. 353 of the Kentucky Public Service Commission. East Kentucky Power Cooperative's energy curtailment and restoration procedures are contained in Appendix I to these tariffs title Emergency Electric Procedures, East Kentucky Power Cooperative, Inc.; prepared April 1, 1994; revised February 17, 1995.

East Kentucky Power Cooperative will adhere to the curtailment of service requirements as set forth below and contained in Kentucky Revised Statutes (KRS) Section 278.214.

> **Curtailment of service by utility or generation and transmission cooperative.** When a utility or generation and transmission cooperative engaged in the transmission of electricity experiences on its transmission facilities an emergency or other event that necessitates a curtailment or interruption of service, the utility or generation and transmission cooperative shall not curtail or interrupt retail electric service within its certified territory, or curtail or interrupt wholesale electric energy furnished to a member distribution cooperative for retail electric service within the cooperative's certified territory, except for customers who have agreed to receive interruptible service, until after service has been interrupted to all other customers whose interruption may relieve the emergency or other event.

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EAST KENTUCKY POWER COOPERATIVE, INC.

Section A

Availability

Available to all cooperative associations which are or shall be members of EKPC. The electric power and energy furnished hereunder shall be separately metered for each point of delivery.

Applicability

Applicable to all power usage at the load center not subject to the provisions of Sections B, C, and E of this tariff.

Monthly Rate - Per Load Center

Demand Charge per kW of billing demand	$7.82
Energy Charge per kWh	$0.027325

Billing Demand

The billing demand (kilowatt demand) is based on EKPC's system peak demand (coincident peak) which is the highest average rate at which energy is used during any fifteen minute interval in the below-listed hours for each month and adjusted for power factor as provided herein:

Months	Hours Applicable for Demand Billing - EST
October through April	7:00 a.m. to 12:00 noon
	5:00 p.m. to 10:00 p.m.
May through September	10:00 a.m. to 10:00 p.m.

Billing demand applicable to this section is equal to the load center's contribution to EKPC's system peak demand minus the actual demands of Section B, Section C, and Section E participants coincident with EKPC's system peak demand.

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Section A (con't.)

Billing Energy

Billing energy applicable to this section is equal to the total energy provided at the load center minus the actual energy provided to Section B, Section C, and Section E participants.

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EAST KENTUCKY POWER COOPERATIVE, INC.

Section B

Availability

Available to all cooperative associations which are or shall be members of EKPC and which execute EKPC approved contracts with the ultimate consumers. The electric power and energy furnished hereunder shall be separately metered for each point of delivery.

Applicability

Applicable to cooperative associations and ultimate consumers willing to contract for demands of 500 kW or greater and a monthly minimum energy usage equal to or greater than 400 hours per kW of contract demand. Wholesale monthly minimum demand shall be agreed between the cooperative association and EKPC.

Monthly Rate

Demand Charge per kW of Minimum Demand	$5.39
Demand Charge per kW of Billing Demand in Excess of Minimum Demand	$7.82
Energy Charge per kWh	$0.027325

Billing Demand

The billing demand (kilowatt demand) shall be the minimum demand plus any excess demand. Excess demand occurs when the ultimate consumer's highest demand during the current month, coincident with EKPC's system peak (coincident peak), exceeds the minimum demand. EKPC's system peak demand is the highest average rate at which energy is used during any fifteen minute interval in the below listed hours for each month and adjusted for power factor as provided herein:

Months	Hours Applicable for Demand Billing - EST
October through April	7:00 a.m. to 12:00 noon 5:00 p.m. to 10:00 p.m.
May through September	10:00 a.m. to 10:00 p.m.

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Section B (con't.)

Minimum Monthly Charge

The minimum monthly charge shall not be less than the sum of (a) and (b) below:

(a) The product of the minimum demand multiplied by the demand charge, plus

(b) The product of the minimum demand multiplied by 400 hours and the energy charge per kWh minus the fuel base per kWh.

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Section C

Availability

Available to all cooperative associations which are or shall be members of EKPC and which execute EKPC approved contracts with the ultimate consumers. The electric power and energy furnished hereunder shall be separately metered for each point of delivery.

Applicability

Applicable to cooperative associations and ultimate consumers willing to contract for demand of 500 kW or greater and a monthly energy usage equal to or greater than 400 hours per kW of billing demand.

Monthly Rate

Demand Charge per kW of Billing Demand	$5.39
Energy Charge per kWh	$0.027325

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EAST KENTUCKY POWER COOPERATIVE, INC.

Section C (con't.)

Billing Demand

The kilowatt demand shall be the greater of (a) or (b) listed below:

(a) The contract demand

(b) The ultimate consumer's highest demand during the current month or preceding eleven months coincident with EKPC's system peak demand. EKPC's system peak demand is the highest average rate at which energy is used during any fifteen minute interval in the below listed hours for each month and adjusted for power factor as provided herein:

Months	Hours Applicable for Demand Billing - EST
October through April	7:00 a.m. to 12:00 noon
	5:00 p.m. to 10:00 p.m.
May through September	10:00 a.m. to 10:00 p.m.

Minimum Monthly Charge

The minimum monthly charge shall not be less than the sum of (a) and (b) below:

(a) The product of the billing demand multiplied by the demand charge, plus

(b) The product of the billing demand multiplied by 400 hours and the energy charge per kWh minus the fuel base per kWh.

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EAST KENTUCKY POWER COOPERATIVE, INC.

Section D
Interruptible Service

Standard Rider

This Interruptible Rate is a rider to Rate Sections A, B, C, and E.

Applicable

In all territory served by EKPC.

Availability of Service

This schedule shall be made available at any load center, to any member cooperative where an ultimate "Customer" will contract for an interruptible demand of not less than 250 kW and not more than 20,000 kW, subject to a maximum number of hours of interruption per year and a notice period as listed below.

Monthly Rate

A monthly demand credit per kW is be based on the following matrix:

	Annual Hours of Interruption		
Notice Minutes	200	300	400
10	$2.70	$3.15	$3.60
60	$2.25	$2.70	$3.15

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Section D (con't.)

Determination of Measured Load - Billing Demand

The billing demand (kilowatt demand) is based on EKPC's system peak demand (coincident peak) which is the highest average rate at which energy is used during any fifteen minute interval in the below listed hours for each month and adjusted for power factor as provided herein:

Months	Hours Applicable for Demand Billing - EST
October through April	7:00 a.m. to 12:00 noon
	5:00 p.m. to 10:00 p.m.
May through September	10:00 a.m. to 10:00 p.m.

The interruptible billing demand shall be equal to the amount by which the monthly billing demand exceeds the minimum billing demand as specified in the contract.

Conditions of Service for Customer Contract

1. The customer will, upon notification by the Cooperative, reduce his load being supplied by the Cooperative to the contract capacity level specified by the contract.

2. The Cooperative will endeavor to provide the Customer as much advance notice as possible of the interruption of service. However, the Customer shall interrupt service within the notice period as contracted.

3. Service will be furnished under the Cooperatives "General Rules and Regulations" or "Terms and Conditions" except as set out herein and/or provisions agreed to by written contract.

4. No responsibility of any kind shall attach to the Cooperative for, or on account of, any loss or damage caused by, or resulting from, any interruption or curtailment of this service.

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Section D (con't.)

5. The Customer shall own, operate, and maintain all necessary equipment for receiving electric energy and all telemetering and communications equipment, within the Customer's premises, required for interruptible service.

6. The minimum original contract period shall be one year and thereafter until terminated by giving at least six months previous written notice. The Cooperative may require a contract be executed for a longer initial term when deemed necessary by the size of the load and other conditions.

7. The Fuel Adjustment Clause, as specified in the General Wholesale Power Rate Schedule, is applicable.

Calculation of Monthly Bill

The monthly bill is calculated on the following basis:

A. Sum of metering point charge and substation charge, plus

B. Minimum billing demand in kW multiplied by the firm capacity rate, plus

C. Interruptible billing demand in kW multiplied by interruptible rate, plus

D. Energy usage in kWh multiplied by the energy rate.

Number and Duration of Interruptions

A. Winter Season: There shall be no more than two (2) interruptions during any 24 hour calendar day. No interruption shall last more than six hours.

B. Summer Season: There shall be no more than one (1) interruption during any 24 hour calendar day. No interruption shall last more than twelve hours.

C. The maximum number of annual hours of interruption shall be in accordance with the customer contracted level of interruptible service.

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Section D (con't.)

Charge for Failure to Interrupt

If Customer fails to interrupt load as requested by the Cooperative, the Cooperative shall bill the uninterrupted load at a rate equal to five (5) times the applicable firm power demand charge for that billing month. Uninterrupted load is equal to actual load during requested interruption minus firm load.

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EAST KENTUCKY POWER COOPERATIVE, INC.

Section E

Availability

Available to all cooperative associations which are or shall be members of EKPC. The electric power and energy furnished hereunder shall be separately metered for each point of delivery.

Applicability

Applicable to all power usage at the load center not subject to the provisions of Section A, Section B, or Section C of this tariff.

Monthly Rate - Per Load Center

A cooperative association may select either Option 1 or Option 2 of this section of the tariff to apply to all load centers. The cooperative association must remain on a selected option for at least one (1) year and may change options, no more often than every twelve (12) months, after giving a minimum notice of two (2) months.

	Option 1	Option 2
Demand Charge per kW of Billing Demand	$6.92	$5.22
Energy Charge per kWh		
On-Peak kWh	$0.027620	$0.034684
Off-Peak kWh	$0.027118	$0.027118

On-peak and off-peak hours are provided below:

Months	On-Peak Hours - EST	Off-Peak Hours - EST
October through April	7:00 a.m. to 12:00 noon	12:00 noon to 5:00 p.m.
	5:00 p.m. to 10:00 p.m.	10:00 p.m. to 7:00 a.m.
May through September	10:00 a.m. to 10:00 p.m.	10:00 p.m. to 10:00 a.m.

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Section E (con't.)

Billing Demand

The billing demand (kilowatt demand) is based on EKPC's system peak demand (coincident peak) which is the highest average rate at which energy is used during any fifteen minute interval in the below listed hours for each month and adjusted for power factor as provided herein:

Months	Hours Applicable for Demand Billing - EST
October through April	7:00 a.m. to 12:00 noon
	5:00 p.m. to 10:00 p.m.
May through September	10:00 a.m. to 10:00 p.m.

Billing demand applicable to this section is equal to the load center's contribution to EKPC's system peak demand minus the actual demands of Section A, Section B, and Section C participants coincident with EKPC's system peak demand.

Billing Energy

Billing energy applicable to this section is equal to the total energy provided at the load center minus the actual energy provided to Section A, Section B, and Section C participants.

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Section F

Voluntary Interruptible Service

Standard Rider

This Voluntary Interruptible Service is a rider to Rate Sections A, B, C, E, G and special contracts.

Applicable

In all territory served by EKPC.

No interruptible demand which is already under contract under any other Interruptible Rider is eligible for this service.

Availability of Service

This schedule shall be made available at any load center, to any member cooperative where an ultimate "Customer" is capable of interrupting at least 1,000 kW upon request and has contracted with the Member System to do so under a retail contract rider.

Conditions of Service

1. Any request for interruption under this Rider shall be made by EKPC through its Member Cooperative.

2. Each interruption will be strictly voluntary. The Member Cooperative may accept or decline the terms of the interruption offered by EKPC.

3. No responsibility of any kind shall attach to EKPC for, or on account of, any loss or damage caused by, or resulting from, any interruption or curtailment of this service.

4. The Customer shall agree by contract to own, operate, and maintain all necessary equipment for receiving electric energy and all telemetering and communications equipment, within the Customer's premises, required for interruptible service.

5. It is the Member Cooperative's responsibility to notify the Customer and execute an

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interruption request from EKPC. Therefore, EKPC and the Member Cooperative shall mutually agree upon the manner by which EKPC shall notify the Customer of a request for interruption. Such an agreement shall include the means by which EKPC shall communicate the interruption request (e.g. email, phone, pager, etc.) and the Customer's point of contact to receive such a request.

6. EKPC will attempt to provide as much advance notice as possible for requests for interruption. However, upon the Customer's acceptance of the Terms of Interruption the Customer's load shall be interrupted with as little as one (1) hour of advance notification.

7. EKPC reserves the right to require verification of a Customer's ability to interrupt its load.

8. The Member Cooperative is not eligible for the Interruption Credits for any interruption when the Customer's interruptible load is down for other reasons during the period of the requested interruption. Such down time would include any event outside of the Customer's normal operating circumstances such as planned or unplanned outages due to renovation, repair, vacation, refurbishment, renovation, strike, or force majeure.

Interruptible Customer Data Report

The Member Cooperative shall furnish to EKPC an Interruptible Customer Data Report for each of its eligible Customers. Such a report shall include such information as:

1. The maximum number of hours per day and the time of day that the Customer has the ability to interrupt.

2. The maximum number of days and the maximum number of consecutive days that the Customer has the ability to interrupt.

3. The maximum interruptible demand and the minimum interruptible demand by the Customer upon request.

4. The minimum price at which each Customer is willing to interrupt.

Demand and Energy Interruption

The Customer will agree by contract, within an agreed time after receiving notice, to comply to the extent possible with EKPC's request to interrupt load. EKPC is the sole judge of the need for

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interruption of load. EKPC is the sole judge of the amount of interruptible demand provided by the Customer, based on the following calculation:

The average of the integrated fifteen-minute demand for the two hours prior to the hour immediately preceding the call for interruption will be used as the basis for establishing the existing demand level. The hourly interruptible demands for each customer will be the difference between the existing demand level and the actual demand measured during each hour of the interruption period. The interrupted energy of each interruption period shall be the sum of the hourly interrupted demands. These types of interruptions will cover a period of no more than six hours.

For interruptions longer than six hours in duration, the Customer's average load usage for the same hours as the interruption hours in the two preceding business days prior to the day of notice will be used as the basis for determining the demand level for interruption. The average hourly usage for these business days, based on the average integrated fifteen minute demand intervals, minus the actual load during the interruption period will equal the amount of interruptible load. The interrupted energy of each interruption period shall be the sum of the hourly interrupted demands.

Terms of Interruption

For each interruption request, EKPC shall identify the Customer to be interrupted. EKPC shall inform the Member Cooperative or each Customer of an interruption request in accordance with the agreed upon method of notification. The Terms of Interruption shall include the following:

1. The time at which each interruption shall begin is to be established by EKPC. At least one (1) hour of advance notice of each request for interruption shall be provided by EKPC.

2. The duration in clock hours of the interruption request is to be established by EKPC.

3. The current price and the potential savings. This price will be determined by EKPC on a case by case basis and will be based on a percentage of the market price of power at the time of interruption.

4. The Member Cooperative shall specify or arrange for the Customer to specify:

   a. The maximum demand in kW that will be interrupted.

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b. The maximum firm demand that the Customer will purchase through the Member Cooperative during the interruption.

Interruption Credits

The interruption credit for each interruption period shall be equal to the interrupted energy MWh times an amount equal to 110% by which the quoted price for each interruption exceeds the Customer's regular tariff rate. The sum of the interruption credits for the billing month will be allocated as follows:

1. The Member Cooperative's account with EKPC will be credited in the amount of 10% of the credit to the Customer.

2. The interruption credit to the Customer shall be equal to the product of the interrupted energy multiplied by the interruption price for each interruption. This amount will be credited to the Member Cooperative's account with EKPC and passed along to the Customer.

Failure to Interrupt

For those Customers failing to interrupt a minimum of 80% of their agreed amount of interruptible load of 5,000 kW or greater, an excess energy charge will be applicable. This excess energy is equal to the difference of 80% of the interruptible load minus the interrupted load. Excess energy shall be charged to the Customer at a price equal to 125% of the interruption price plus the standard rate applicable to this load.

Term

The minimum original contract period shall be one (1) year and shall remain in effect thereafter until either party provides to the other at least thirty (30) days previous written notice.

Interruption Implementation Procedure

Voluntary interruptions will be implemented based on data developed from the Interruptible Customer Data Report. EKPC personnel will match the interruption scenario with the interruptible customers' profiles to determine interruption priority and sequence.

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE
6/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC.

Section G

SPECIAL ELECTRIC CONTRACT RATE
Applicable to Inland Container Corporation

Character of Service

Three-phase 60 Hertz alternating current as specified in the Agreement for Purchased Power.

Monthly Rate

Demand Charge per Billing kW	$5.39
Energy Charge per ALL kWh	$0.025560

Determination of Billing Demand

The kilowatt demand shall be the greater of (a) or (b) listed below:

(a) The contract demand

(b) The ultimate consumer's highest demand during the current month or preceding eleven months coincident with EKPC's system peak demand. EKPC's system peak demand is the highest average rate at which energy is used during any fifteen minute interval in the below listed hours for each month and adjusted for power factor as provided herein:

Months	Hours Applicable for Demand Billing - EST
October through April	7:00 a.m. to 12:00 noon 5:00 p.m. to 10:00 p.m.
May through September	10:00 a.m. to 10:00 p.m.

DATE OF ISSUE June 7, 2005 DATE EFFECTIVE: Service rendered on and after June 1, 2005

ISSUED BY Ray M. Walk TITLE President & Chief Executive Officer

Issued by authority of an Order of the Public Service Commission of Kentucky in Case No. 2004-00464 Dated May 24, 2005

PUBLIC SERVICE COMMISSION
OF KENTUCKY
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6/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC.

Section G (con't.)

Minimum Monthly Charge

The minimum monthly charge shall not be less than the sum of (a), (b), and (c) below:

(a) The metering and substation charge, plus

(b) The product of the billing demand multiplied by the demand charge, plus

(c) The product of $0.007 multiplied by the product of the billing demand multiplied by 400 hours.

Power Factor Adjustment

Refer to EKPC General Wholesale Power Tariffs Power Factor Adjustment, Original Sheet 4.

Fuel Adjustment Clause

Refer to EKPC General Wholesale Power Tariffs Fuel Adjustment, Original Sheets 2-4.

DATE OF ISSUE June 7, 2005 DATE EFFECTIVE: Service rendered on and after June 1, 2005

ISSUED BY Ray M. Pelk TITLE President & Chief Executive Officer

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PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE
6/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC.

Section G (con't.)

Economic Development Rider

An Economic Development Rate (EDR) shall apply to the Agreement consisting of a demand credit determined as follows:

For sixty consecutive months, beginning with the first month that a customer's increased metered demand exceeds 1,000 kW, or at a date specified in the contract, whichever shall first occur, a Demand Credit will be applicable to customer's power usage, and will be equal to the product of the increased metered demand times the Demand Charge, and as it may be modified from time to time, multiplied by the following applicable percentage:

(1) 50% for the first twelve consecutive months of the credit period,

(2) 40% for the second twelve consecutive months of the credit period,

(3) 30% for the third twelve consecutive months of the credit period,

(4) 20% for the fourth twelve consecutive months of the credit period,

(5) 10% for the fifth twelve consecutive months of the credit period, and none thereafter

DATE OF ISSUE June 7, 2005 DATE EFFECTIVE: Service rendered on and after June 1, 2005

ISSUED BY Roy M. Falk TITLE President & Chief Executive Officer

Issued by authority of an Order of the Public Service Commission of Kentucky in Case No. 2004-00464 Dated May 24, 2005

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE
6/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC.

Section H

Wholesale Renewable Resource Power Service

Standard Rider

This Renewable Resource Power Service is a rider to Rate Sections A, B, C, and E. The purpose of this service is to provide Member Systems with a source of renewable resource generated power for resale to their Customers.

Applicable

In all territory served by EKPC.

Availability of Service

This service is contingent upon the available supply of energy generated from renewable resources which EKPC owns or controls, or such energy which EKPC has purchased from other wholesale suppliers.

This schedule shall be made available at any load center to any member cooperative where a retail "Customer" contracts for renewable resource power service in the following block amounts:

100 kWh

AND where retail "Customer" has contracted with the Member Cooperative Association to do so under a retail contract rider.

Eligibility

Any EKPC Member Cooperative Association that has completed and returned a "Pledge to Purchase Renewable Resource Power Service" application to EKPC will be eligible for this rider. This form will indicate the number of blocks that the Member Cooperative Association intends to purchase monthly as a firm purchase power commitment for a period of one year. All such Member Cooperative Associations will have executed an Agreement for the sale of renewable resource power with a retail consumer.

DATE OF ISSUE June 7, 2005 DATE EFFECTIVE: Service rendered on and after June 1, 2005

ISSUED BY Roy M. Falk TITLE President & Chief Executive Officer

Issued by authority of an Order of the Public Service Commission
Case No. 2004-00464 Dated May 24, 2005

PUBLIC SERVICE COMMISSION
OF KENTUCKY
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6/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC.

Section H (con't.)

Monthly Rate

The monthly rate for this service will be a renewable power premium, i.e. added charge, for all renewable power purchased by the participating Member Cooperative Association. The renewable rate premium per block is as follows:

100 kWh block	$2.375	per block ($0.02375 per kWh)

This power can be purchased only in the blocks and amounts listed above. These rates are in addition to the regular wholesale rate applicable to the Member Cooperative Association.

Billing and Minimum Charge:

Blocks of power sold under this tariff shall constitute the minimum amount of energy in kWh that the Member Cooperative Association may be billed for during a normal billing period.

Terms of Service and Payment:

This schedule shall be subject to all other terms of service and payment of the wholesale power tariff.

Fuel Adjustment Clause:

The fuel adjustment clause is not applicable to renewable resource power.

Special Terms:

When Member Cooperative Associations' contract for this type of power service, said Member Cooperative Associations will pay for all such power at the rates prescribed in this tariff for the complete contract period.

DATE OF ISSUE June 7, 2005 DATE EFFECTIVE: Service rendered on and after June 1, 2005

ISSUED BY Roy M. Falk TITLE President & Chief Executive Officer

Issued by authority of an Order of the Public Service Commission o
Case No. 2004-00464 Dated May 24, 2005

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE
6/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC.

Section DSM - 1

Touchstone Energy Manufactured Home Program

Purpose

The Touchstone Energy Manufactured Home Program is a conservation program that encourages the sale of more energy-efficient manufactured homes. It is based on the *Energy Star* standards for manufactured homes, a nationally recognized symbol of energy efficiency and quality developed and operated jointly by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE).

Availability

This program is available in all service territory served by EKPC.

Eligibility

To qualify as a Touchstone Energy Manufactured Home under EKPC's program, the participating manufactured home must be located in the service territory of a participating Member System and meet the *Energy Star* standards by including additional floor, wall and ceiling insulation, double pane windows and an electric heat pump.

Rebate

EKPC will provide an incentive for retail customers of our Member Systems to participate in this program by offering a one-time rebate. EKPC will rebate $250 per certified manufactured home to the participating Member System. Rebates will be paid to the participating Member Systems upon written certification that the retail participant has met the *Energy Star* standards for newly constructed manufactured homes.

Annual Reports

EKPC will submit annual reports on the Program that contain the number of participants from each Member System, the annual costs, including the costs of the rebates, and the status of the rebate provision. EKPC will file the first report by March 31, 2004, and annually thereafter.

Term

The Touchstone Energy Manufactured Home Program will remain in effect through 2007. If EKPC should decide to continue the rebate provision of the Program beyond 2004 or the entire program beyond 2007, an application for approval from the Kentucky Public Service Commission will be filed 6 months prior to the date of continuation.

DATE OF ISSUE June 7, 2005 DATE EFFECTIVE: Service rendered on and after June 1, 2005

ISSUED BY Roy M. Pack TITLE President & Chief Executive Officer

Issued by authority of an Order of the Public Service Commission c
Case No. 2004-00464 Dated May 24, 2005

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6/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC.

Section DSM - 2

Touchstone Energy Home Program

Purpose

The Touchstone Energy Home Program is a conservation program that encourages the sale of more energy-efficient homes. It is based on *Energy Star* standards for homes, a nationally recognized symbol of energy efficiency and quality developed and operated jointly by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE).

Availability

This program is available in all service territory served by EKPC.

Eligibility

To qualify as a Touchstone Energy Home under EKPC's program, the participating home must be located in the service territory of a participating Member System and meet the *Energy Star* standards by including additional floor, wall and ceiling insulation, double pane windows and an electric heat pump.

Rebate

EKPC and its Member Systems will provide an incentive to retail customers to build or purchase a Touchstone Energy home. Member System Cooperatives may elect to offer a rebate of up to $500 for each participant. EKPC will match the rebate offered by the member system cooperative up to a maximum of $500, resulting in a maximum rebate of $1,000 for each participant. Rebates will be paid to each participant upon written certification that the newly constructed home has met the *Energy Star* standards.

Annual Reports

EKPC will submit annual reports on the Program that contain the number of participants from each Member System, the annual costs, including the costs of the rebates, and the status of the rebate provision. EKPC will file the first report by June 30, 2005, and annually thereafter.

Term

The Touchstone Energy Home Program will remain in effect through 2009. If EKPC should decide to continue the rebate provision of the Program beyond 2006 or the entire program beyond 2009, an application for approval from the Kentucky Public Service Commission will be filed 6 months prior to the date of continuation.

DATE OF ISSUE June 7, 2005 DATE EFFECTIVE: Service rendered on and after June 1, 2005

ISSUED BY Roy M. Falk TITLE President & Chief Executive Officer

Issued by authority of an Order of the Public Service Commission c
Case No. 2004-00464 Dated May 24, 2005

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6/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC

RATE ES – ENVIRONMENTAL SURCHARGE

APPLICABILITY

Applicable to all sections of this rate schedule and this rate schedule shall apply to each Member System.

AVAILABILITY

This rate schedule shall apply to EKPC rate sections A, B, C, E, and G and all special contracts with rates subject to adjustment upon the approval of the Commission.

RATE

The Environmental Surcharge shall provide for monthly adjustments based on a percent of revenues equal to the difference between the environmental compliance costs in the base period and in the current period based on the following formula:

CESF = E(m) / R(m) MESF = CESF – BESF

MESF = Monthly Environmental Surcharge Factor
CESF = Current Environmental Surcharge Factor
BESF = Base Environmental Surcharge Factor of 0.51%

where E(m) is the total of each approved environmental compliance plan revenue requirement of environmental costs for the current expense month and R(m) is the revenue for the current expense month as expressed below.

Definitions

(1) E(m) = [(RB/12)(RORB) + OE – BAS + (Over)Under Recovery

where:

(a) RB is the Environmental Compliance Rate Base, defined as electric plant in service and CWIP for applicable environmental projects adjusted for accumulated depreciation, cash working capital, spare parts and limestone inventory, emission allowance inventory;

(b) RORB is the Rate of Return on the Environmental Compliance Rate Base, designated as the average cost of debt for environmental compliance plan projects approved by the Commission plus application of a times-interest-earned ratio of 1.15;

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6/1/2005
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By
Executive Director

(c) OE is the Monthly Pollution Control Operating Expenses, defined as the average of the twelve month operating and maintenance expense; depreciation expense, property taxes, insurance expense, emission allowance expense, and consulting fees. O&M expense for the pollution-control related equipment at the Gilbert generating unit will be recovered by including an average of the monthly expense as the Unit begins operation;
(d) BAS is the net proceeds from By-Products and Emission Allowance Sales, and;
(e) (Over) or Under recovery amount as amortized from prior six-month period.

(2) Total E(m) is multiplied by the Member System Allocation Ratio to arrive at Net E(m). The Member System Allocation Ratio is based on the ratio of the 12-month total revenue from sales to Member Systems to which the Surcharge will be applied, ending with the current expense month, divided by the 12-month total revenue from sales to Member Systems and off-system sales.

(3) The revenue R(m) is the average monthly revenue, including base revenues and automatic adjustment clause revenues less Environmental Cost Recovery Surcharge revenues, for EKPC for the twelve months ending with the current expense month.

(4) The current expense month (m) shall be the second month preceding the month in which the Environmental Surcharge is billed.

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SECTION 9 (1)
By
Executive Director

Section DSM - 3

Direct Load Control of Water Heaters Program

Direct Load Control of Air-Conditioners Program

Purpose

The Direct Load Control of Water Heaters and Air Conditioners are demonstration projects established to encourage the reduction in growth of peak demand, enabling the Company to utilize its system more efficiently and defer the construction of new generation.

Availability

Both the Direct Load Control of Water Heaters Program and the Direct Load Control of Air Conditioners Program are available to residential customers in the service territories of EKPC Member System Blue Grass Energy. The Direct Load Control of Water Heaters Program is available at EKPC Member System Big Sandy RECC.

Availability may be denied where, in the judgment of the Member System, installation of the load control equipment is impractical.

Availability is limited to 400 switches on central air conditioning or heat pump units and on electric water heater units for residential customers of Member System Blue Grass Energy.

Availability is limited to 300 switches on electric water heating units for customers of Member System Big Sandy RECC.

Eligibility

To qualify for these Programs, the participant must be located in the service territory of the participating Member System and have central air conditioning or heat pumps units and/or 40 gallon electric water heating units. The above appliances may be electrically cycled or interrupted in accordance with the rules of this Tariff.

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6/1/2006
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SECTION 9 (1)
By _____
Executive Director

Incentive - Direct Load Control of Water Heaters Program

EKPC and Member Systems Big Sandy RECC and Blue Grass Energy will provide an incentive to the participants in this program. EKPC will credit the wholesale power bill of both Blue Grass Energy and Big Sandy RECC $10.00 per switch. Blue Grass Energy and Big Sandy in turn will credit the residential power bill of the participant $10.00 per switch. The participant will receive this credit regardless of whether the water heater is cycled.

Incentive - Direct Load Control of Air-Conditioners Program

EKPC and Member System Blue Grass Energy will provide an incentive to the participants in this program. EKPC will credit the wholesale power bill of Blue Grass Energy $20.00 per switch. Blue Grass Energy in turn will credit the residential power bill of the participant $20.00 per switch. The participant will receive this credit regardless of whether the air conditioner or heat pump is cycled.

Time Period for the Direct Load Control of Water Heaters Program

A load control switch will be placed on the water heater and may be electrically interrupted for a maximum time period of four hours.

EKPC will cycle the water heaters only during the hours listed below.

Months	Hours Applicable for Demand Billing - EST
October through April	6:00 a.m. to 12:00 noon
	4:00 p.m. to 10:00 p.m.
May through September	10:00 a.m. to 10:00 p.m.

Time Period for the Direct Load Control of Air Conditioners

A load control air conditioning switch will be placed on each central air conditioning unit or heat pump that will allow the unit to be cycled off for 15-minute periods.

EKPC will cycle the air conditioning units and heat pumps only during its summer on-peak billing hours listed below.

Months	Hours Applicable for Demand Billing - EST
May through September	10:00 a.m. to 10:00 p.m.

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6/1/2006
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

DATE OF ISSUE April 18, 2006 DATE EFFECTIVE June 1, 2006

ISSUED BY TITLE President & Chief Executive Officer

Issued by authority of an Order of the Public Service Commi
Case No. 2006-00048 Dated April 18, 2006

Report to the Commission

EKPC will submit a report to the Commission outlining the results of the demonstration project by December 31, 2007.

Term

The term of the Direct Load Control of Water Heaters Program will be from October 1, 2006 to September 30, 2007. The term of the Direct Load Control of Air Conditioners will be from June 1, 2006 to September 30, 2007. If EKPC should decide to continue this demonstration project beyond September 30, 2007, a new tariff will be filed with the Kentucky Public Service Commission by August 31, 2007.

Terms and Conditions

1. If a participant decides to withdraw from the program(s) or change to another load control option, the Member Systems will endeavor to implement the change as soon as possible.

2. Prior to the installation of load control devices, the Member Systems may inspect the participant's electrical equipment to insure good repair and working condition, but the Member Systems shall not be responsible for the repair or maintenance of the electrical equipment.

3. The Member Systems will install, own, and maintain the load management devices controlling the participant's air conditioner or water heater. The participant must allow the Member System reasonable access to install, maintain, inspect, test and remove load control devices. Inability of the Member System to gain access to the load management device to perform any of the above activities for a period exceeding 30 days may, at the Member System's option, result in discontinuance of credits under this tariff until such time as the Member System is able to gain the required access.

PUBLIC SERVICE COMMISSION
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6/1/2006
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)
By
Executive Director

DATE OF ISSUE April 18, 2006 DATE EFFECTIVE June 1, 2006

ISSUED BY TITLE President & Chief Executive Officer

Issued by authority of an Order of the Public Service Commission
Case No. 2006-00048 Dated April 18, 2006

EAST KENTUCKY POWER COOPERATIVE

For All Communities Served
P.S.C. No. 22
Original Sheet No. 16
Cancelling P.S.C. No. _____
_____ Sheet No. _____

EAST KENTUCKY POWER COOPERATIVE
P.O. BOX 707 WINCHESTER, KENTUCKY 40391

PAGE - 1
INVOICE DATE:

WHOLESALE POWER INVOICE
SUBSTATION CHARGES
MONTH, 19XX

SUBSTATION	RATE CODE	BILLING NOTES	BILLING DEMAND	BILLING KWH	DEMAND CHARGE	ENERGY CHARGE	WHEELING OR SUBSTATION	FUEL ADJUSTMENT	TOTAL CHARGE
CO-OP TOTALS									
E.T.S		****							
** CONSUMER BILLED FROM A PRIOR DEMAND									

TOTAL DUE BY 20TH DAY OF MONTH

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE

DEC 22 1992

PURSUANT TO 807 KAR 5:011,
SECTION 9 (1)
BY: _____
PUBLIC SERVICE COMMISSION MANAGER

DATE OF ISSUE November 20, 1992
ISSUED BY Donald K Morris
Name of Officer

DATE EFFECTIVE December 1, 1992
TITLE President and General Manager

Issued by authority of the Public Service Commission of Kentucky in Case No. 90-158 dated 807 KAR 5:011, KAR 5:006, Section 6(3).

EAST KENTUCKY POWER COOPERATIVE

For All Communities Served
P.S.C. No. 22
Original Sheet No. 17
Cancelling P.S.C. No._____
_____ Sheet No. _____

EAST KENTUCKY POWER COOPERATIVE
P.O. BOX 707 WINCHESTER, KENTUCKY 40391

WHOLESALE POWER INVOICE
SUBSTATION DETAIL CHARGES
MONTH, 19XX

PAGE - 2
INVOICE DATE:

SUBSTATION	RATE CODE	BILLING NOTES	BILLING DEMAND	BILLING KWH	DEMAND CHARGE	ENERGY CHARGE	WHEELING OR SUBSTATION	FUEL ADJUSTMENT	TOTAL CHARGE
---	---	---	---	---	---	---	---	---	---
CO-OP TOTALS									
E.T.S.		****							
							CO-OP AMOUNT DUE		

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE

DEC 29 1992

DATE OF ISSUE November 20, 1992
ISSUED BY Donald R Norris
Name of Officer

DATE EFFECTIVE December 1, 1992
TITLE President & General Manager

Issued by authority of the Public Service Commission of Kentucky, General Rules
807 KAR 5:006, Section 6(3).

PURSUANT TO 807 KAR 5:011,
SECTION 9 (1)
BY: George Allen
PUBLIC SERVICE COMMISSION MANAGER

EAST KENTUCKY POWER COOPERATIVE

For All Communities Served
P.S.C. No. 22
Original Sheet No. 18
Cancelling P.S.C. No. _____
_____Sheet No._____

EAST KENTUCKY POWER COOPERATIVE, INC.
P.O. BOX 707 WINCHESTER, KENTUCKY 40391

WHOLESALE POWER INVOICE
CO-OP TOTAL CHARGES

MONTH, 19XX

PAGE - 3
INVOICE DATE:

SUBSTATION	RATE CODE	BILLING NOTES	BILLING DEMAND	BILLING KWH	DEMAND CHARGE ($$)	ENERGY CHARGE ($$)	WHEELING OR SUBSTATION CHARGE($$)	FUEL ADJUSTMENT ($$)	TOTAL CHARGE ($$)
SCHEDULE A ADJ. TOTALS									
SCHEDULE B ADJ. TOTALS									
SCHEDULE C ADJ. TOTALS									
SCHEDULE E ADJ. TOTALS STEP 1									
SCHEDULE E ADJ. TOTALS STEP 2									
SCHEDULE A TOTALS									
SCHEDULE B TOTALS									
SCHEDULE C TOTALS									
SCHEDULE E TOTALS STEP 1									
SCHEDULE E TOTALS STEP 2									
E.T.S.									
TOTALS									
CONSUMER BILLED FROM A PRIOR DEMAND									
							TOTAL AMOUNT DUE		

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE
DEC 22 1992
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SECTION 9 (1)
BY: _____
PUBLIC SERVICE COMMISSION MANAGER

DATE OF ISSUE November 20, 1992
ISSUED BY Donald R Norris
Name of Officer

DATE EFFECTIVE December 2, 1992
TITLE President & General Manager

Issued by authority of the Public Service Commission of Kentucky, General Rules 807 KAR 5:006, Section 6(3).

EAST KENTUCKY POWER COOPERATIVE

For all Communities Served
P.S.C. No. 22
Original Sheet No. 19
Cancelling P.S.C. No. _____
Sheet No. _____

EAST KENTUCKY POWER COOPERATIVE, INC.
P.O. BOX 707 WINCHESTER, KENTUCKY 40391
STATISTICS FOR THE MONTH OF

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KW-SCH .A	7.82
KW-SCH. B CONTRACT	5.39
EXCESS CONTRACT	7.82
KW-SCH. C	5.39
KW-SCH. E	4.34

KWH-SCH. B&C	23.96
KWH-SCH. E STEP 1	31.85
KWH-SCH. E STEP 2	23.96
KWH-ETS	19.168
FUEL RATE	1.4000-
OFFICE WHEELING	1.50

SUBSTATION	CONSTANT KW KWH	KWH METER READINGS PRESENT	PREV	DIFF	KWH BILLING DEMAND	TOD DEMAND	HIGHEST DEMAND	CONTRACT DEMAND	KWH BILLING KWH	ACTUAL KWH	CONTRACT KWH
SCHEDULE A STATISTIC TOTALS											
SCHEDULE B STATISTIC TOTALS											
SCHEDULE C STATISTIC TOTALS											
SCHEDULE E STATISTIC TOTALS STEP 1											
SCHEDULE E STATISTIC TOTALS STEP 2											
E.T.S	****										
GRAND TOTALS											

DATE OF ISSUE November 20, 1992
ISSUED BY Donald R. Mason
Name of Officer

DATE EFFECTIVE December 1, 1992
TITLE President & General Manager

PURSUANT TO 807 KAR 5:011, SECTION 9(1)
BY: [signature]
PUBLIC SERVICE COMMISSION MANAGER

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE
DEC 22 1992

Issued by authority of the Public Service Commission of Kentucky, 807 KAR 5:006, Section 6(3).

Fleming Mason RECC
P.O. Drawer 328
Flemingsburg, Kentucky 41041

EAST KENTUCKY POWER COOPERATIVE
P.O. BOX 707, WINCHESTER, KENTUCKY 40391

STEAM INVOICE
INLAND CONTAINER STATISTICS
DATE

Average Heat Rate	Billing Demand/MMBTU	TOD Demand/MMBTU	Highest Demand/MMBTU	Billing Energy/MMBTU

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE

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SECTION 9 (1)
BY: _____
PUBLIC SERVICE COMMISSION MANAGER

DATE OF ISSUE November 20, 1992
ISSUED BY Donald R Norris
Name of Officer

DATE EFFECTIVE December 1, 1992
TITLE President and General Manager

Issued by authority of the Public Service Commission of Kentucky, General Rules 807 KAR 5:006, Section 6(3).

EAST KENTUCKY POWER COOPERATIVE

For All Communities Served
P.S.C. No. 22
Original Sheet No. 21
Cancelling P.S.C. No. _____
_____Sheet No. _____

Fleming Mason RECC
P.O. Drawer 328
Flemingsburg, Kentucky 41041

EAST KENTUCKY POWER COOPERATIVE
P.O. BOX 707, WINCHESTER, KENTUCKY 40391

STEAM INVOICE
INLAND CONTAINER DETAIL CHARGES
DATE

BILLING NOTES	BILLING DEMAND/MMBTU	BILLING ENERGY/MMBTU	DEMAND CHARGE	ENERGY CHARGE	FUEL ADJUSTMENT	TOTAL CHARGE
					DEMAND/MMBTU	$419.514
					ENERGY/MMBTU	$2.241
					FUEL ADJ./MMBTU	
					MINIMUM BILL	$100,000

EDR DEMAND CREDIT

TOTAL DUE BY 20TH DAY OF THE MONTH

*Steam Measurement Adjustment Factor

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE

DEC 22 1992

PURSUANT TO 807 KAR 5:011,
SECTION 9 (1)
BY: [signature]
PUBLIC SERVICE COMMISSION MANAGER

DATE OF ISSUE November 20, 1992 DATE EFFECTIVE December 1, 1992
ISSUED BY Donald R Norris TITLE President & General Manager
Name of Officer
Issued by authority of the Public Service Commission of Kentucky, General Rules 807 KAR 5:006, Section 6(3)

P.S.C. KY NO. 5

CANCELS P.S.C. KY NO. 4

EAST KENTUCKY POWER COOPERATIVE, INC.

OF

WINCHESTER, KENTUCKY

RATES, RULES, AND REGULATIONS FOR PURCHASING

ELECTRIC POWER AND ENERGY

AT

VARIOUS LOCATIONS THROUGHOUT KENTUCKY

FROM

QUALIFIED COGENERATION AND

SMALL POWER PRODUCTION FACILITIES

FILED WITH THE PUBLIC SERVICE COMMISSION
OF KENTUCKY

ISSUED December 2, 2004 EFFECTIVE January 1, 2005

ISSUED BY EAST KENTUCKY POWER COOPERATIVE, INC.

BY _____

Roy M. Palk
President and Chief Executive Officer

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE
1/1/2005
PURSUANT TO 807 KAR 5:011
SECTION 9 (1)

By _____
Executive Director

EAST KENTUCKY POWER COOPERATIVE, INC.

COGENERATION AND SMALL POWER PRODUCTION POWER PURCHASE RATE SCHEDULE OVER 100 kW

AVAILABILITY

Available only to qualified cogeneration or small power production facilities with a design capacity of over 100 kW which have executed a contract with East Kentucky Power Cooperative and one of EKPC's member distribution systems for the purchase of electric power by East Kentucky Power Cooperative.

RATES

1. Capacity

   a. $8.47 per kW per year is applicable if cogenerator or small power producer is dispatched by East Kentucky Power Cooperative. (R)

   b. $0.00110 per kWh is applicable if cogenerator or small power producer is not dispatched by East Kentucky Power Cooperative. (R)

2. Energy - A base payment per kWh is listed below for a time-differentiated basis or a non-time differentiated basis for the specified years.

   a. Time Differentiated Rates:

	Winter		Summer		
Year	On-Peak	Off-Peak	On-Peak	Off-Peak	
2005	$0.04565	$0.03311	$0.04093	$0.01991	(I)
2006	$0.04280	$0.03116	$0.04304	$0.02115	(I)
2007	$0.04479	$0.03179	$0.04251	$0.02129	(I)
2008	$0.04256	$0.02929	$0.04506	$0.01874	(I)
2009	$0.03876	$0.02682	$0.03901	$0.01667	(I)

   b. Non-Time Differentiated Rates:

Year	2005	2006	2007	2008	2009	
Rate	$0.03502	$0.03437	$0.03498	$0.03360	$0.03014	(I)

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1/1/2005
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Executive Director

DATE OF ISSUE December 2, 2004 DATE EFFECTIVE January 1, 2005

ISSUED BY _____ TITLE President & Chi

EAST KENTUCKY POWER COOPERATIVE, INC.

The on-peak and off-peak energy rates are applicable during the hours listed below for each season:

Winter (October - April)

On-Peak	7:00 a.m. - 12:00 noon 5:00 p.m. - 10:00 p.m.
Off-Peak	12:00 noon - 5:00 p.m. 10:00 p.m. - 7:00 a.m.

Summer (May - September)

On-Peak	10:00 a.m. - 10:00 p.m.
Off-Peak	10:00 p.m. - 10:00 a.m.

TERMS AND CONDITIONS

1. All power from a Qualifying Facility (QF) will be sold only to East Kentucky Power Cooperative.

2. Seller must provide good quality electric power within a reasonable range of voltage, frequency, flicker, harmonic currents, and power factor.

3. Qualifying Facility (QF) shall provide reasonable protection for EKPC and the member cooperative's system.

4. Qualifying Facility (QF) shall design, construct, install, own, operate, and maintain the Qualifying Facility in accordance with all applicable codes, laws, regulations, and generally accepted utility practices.

5. Qualifying Facility shall reimburse EKPC and its member cooperative for all costs incurred as a result of interconnecting with the QF, including operation, maintenance, administration, and billing.

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6. Qualifying Facility shall obtain insurance in the following minimum amounts for each occurrence:

   a. Public Liability for Bodily Injury - $1,000,000.00

   b. Property Damage - $500,000.00

7. Initial contract term shall be for a minimum of twenty years.

8. Qualifying Facilities proposing to supply as available (non-firm) electric power shall not be entitled to a capacity payment.

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Executive Director

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EAST KENTUCKY POWER COOPERATIVE, INC.

COGENERATION AND SMALL POWER PRODUCTION
POWER PURCHASE RATE SCHEDULE
LESS THAN 100 kW

AVAILABILITY

Available only to qualified cogeneration or small power production facilities with a design capacity of less than 100 kW which have executed a contract with East Kentucky Power Cooperative and one of EKPC's member distribution systems for the purchase of electric power by East Kentucky Power Cooperative.

RATES

1. Capacity

   a. $8.47 per kW per year is applicable if cogenerator or small power producer is dispatched by East Kentucky Power Cooperative. (R)

   b. $0.00110 per kWh is applicable if cogenerator or small power producer is not dispatched by East Kentucky Power Cooperative. (R)

2. Energy - A base payment per kWh is listed below for a time-differentiated basis or a non-time differentiated basis for the specified years.

   a. Time Differentiated Rates:

	Winter		Summer		
Year	On-Peak	Off-Peak	On-Peak	Off-Peak	
2005	$0.04565	$0.03311	$0.04093	$0.01991	(I)
2006	$0.04280	$0.03116	$0.04304	$0.02115	(I)
2007	$0.04479	$0.03179	$0.04251	$0.02129	(I)
2008	$0.04256	$0.02929	$0.04506	$0.01874	(I)
2009	$0.03876	$0.02682	$0.03901	$0.01667	(I)

   b. Non-Time Differentiated Rates:

Year	2005	2006	2007	2008	2009	
Rate	$0.03502	$0.03437	$0.03498	$0.03360	$0.03014	(I)

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Winter (October - April)

On-Peak 7:00 a.m. - 12:00 noon
5:00 p.m. - 10:00 p.m.

Off-Peak 12:00 noon - 5:00 p.m.
10:00 p.m. - 7:00 a.m.

Summer (May - September)

On-Peak 10:00 a.m. - 10:00 p.m.

Off-Peak 10:00 p.m. - 10:00 a.m.

TERMS AND CONDITIONS

6. All power from a Qualifying Facility (QF) will be sold only to East Kentucky Power Cooperative.

7. Seller must provide good quality electric power within a reasonable range of voltage, frequency, flicker, harmonic currents, and power factor.

8. Qualifying Facility (QF) shall provide reasonable protection for EKPC and the member cooperative's system.

9. Qualifying Facility (QF) shall design, construct, install, own, operate, and maintain the Qualifying Facility in accordance with all applicable codes, laws, regulations, and generally accepted utility practices.

10. Qualifying Facility shall reimburse EKPC and its member cooperative for all costs incurred as a result of interconnecting with the QF, including operation, maintenance, administration, and billing.

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EAST KENTUCKY POWER COOPERATIVE, INC.

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   a. Public Liability for Bodily Injury - $1,000,000.00

   b. Property Damage - $500,000.00

9. Initial contract term shall be for a minimum of twenty years.

10. Qualifying Facilities proposing to supply as available (non-firm) electric power shall not be entitled to a capacity payment.

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ISSUED BY _____ TITLE President & Chief Executive Officer

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By _____
Executive Director

EMERGENCY ELECTRIC PROCEDURES

East Kentucky Power Cooperative, Inc.

PUBLIC SERVICE COMMISSION
OF KENTUCKY
EFFECTIVE

MAR 01 1996

PURSUANT TO 807 KAR 5:011,
SECTION 9 (1)
BY: Gordon C. Neal
FOR THE PUBLIC SERVICE COMMISSION

Prepared April 1, 1994
Revised: Feb. 17, 1995

EMERGENCY ELECTRIC PROCEDURES

East Kentucky Power Cooperative, Inc.

PUBLIC SERVICE COMMISSION
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EFFECTIVE

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FOR THE PUBLIC SERVICE COMMISSION

Prepared April 1, 1994
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REFERENCE DOCUMENTS:

- EKPC Contact List
- Commonwealth of Kentucky - Emergency Operations Plan, Annex P
- ECAR Guide No. 1 - Emergency Electric Procedures
  - Appendix A - Determination of Days' Coal Supply and Optimum Fuel Conservation Dispatch
  - Appendix B - ECAR Communication Procedures
- ECAR Guide No. 3 - Emergency Procedures During Declining System Frequency
  - Appendix I - Isolation of Generating Units

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SECTION 9 (1)
BY: Andrea C. Neal
FOR THE PUBLIC SERVICE COMMISSION

INTRODUCTION

A vital part of East Kentucky Power's mission is to provide reliable electric service to its 18 member distribution cooperatives. These Emergency Electric Procedures were developed to help EKPC meet this objective. They take into account EKPC's role as the power supplier to the 18 member systems and the member systems' role as the power supplier to the end-of-the-line customer. Contact with and service to the member systems' customers is the responsibility of the respective member cooperatives. This dictates that any need for curtailment or conservation efforts required of the distribution customers must be made known to them through, or with the approval of, the respective member systems.

It is recognized that emergency procedures are a guide for action in response to situations for which assumptions have been made. As such, the actual emergency situation experienced will not be exactly like the one planned for, therefore, the plan should be viewed as flexible and the users given the authority to adjust the procedures to the specific emergency being experienced. The steps to be taken under each emergency procedure are listed in the order of priority. Those individuals with the responsibility of carrying out these steps may stop the further execution of the listed steps when, in their judgement, the emergency is alleviated.

These procedures are based on the premise that all industrial and large commercial customers will have a load reduction plan which will be placed into effect when directed to do so by or with the approval of the respective member systems.

East Kentucky Power and the regulatory environment under which it operates is constantly changing. Thus, the emergency procedures should be periodically adjusted for these changes. The Electric Operations Division Director has overall responsibility for these procedures and future revisions.

These procedures were developed by the Emergency Electric Procedures Task Force:

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Paul Atchison, Chairman
Electric Operations Division Director

Wes Moody, Secretary
Technical Services Manager

George Carruba
System Planning Manager

Jim Shipp
Production Engineering Manager

Randy Dials
Fuel Manager

Jerry Schureman
Member & Corp. Communications Manager

April 1, 1994

Anticipated Capacity Shortage

PUBLIC SERVICE COMMISSION
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BY: Jordan C. Neal
FOR THE PUBLIC SERVICE COMMISSION

ANTICIPATED CAPACITY SHORTAGE

Objective:
To reduce megawatt demand over the time period during which a capacity shortage is anticipated.

Criteria:
A capacity shortage can be anticipated when:

- EKPC available capacity and outside sources of generation are less than the forecasted load demand due to power plant equipment problems, transmission limitations, local coal problems, or environmental constraints. It is assumed that EKPC has already exhausted all efforts to purchase power, at the best available price, from other suppliers.
- If the anticipated capacity shortage is the result of an anticipated regional coal shortage which could occur in the event of widespread transportation problems or a general strike in the coal mines, **Coal Shortage** procedures (EEP3,4,5) are to be used.

Procedure:
The procedure for responding to an anticipated capacity shortage is divided into two parts, *planning* for and trying to avoid the capacity shortage and *action* taken when a capacity shortage is actually being experienced.

Planning:

1. If tie-line limits are preventing energy transfers to the EKPC system, work with interconnected companies to determine temperature specific tie-line limits during the anticipated shortage period.

2. Bring all EKPC coal-fired generation on-line in anticipation of need.

3. Bring all EKPC combustion turbines on line and run at minimum levels until needed.

4. Coordinate with other companies to cut our sales when we are experiencing a capacity shortage.

5. The Electric Operations (EO) Division Director initiates the **Load Reduction Alert** by contacting the Marketing and Communications (M&C) Division Director and advising him of the anticipated capacity shortage.

6. The EO Division Director notifies the member system managers of EKPC' s intent to interrupt service to loads with interruptible rates. Information as to when and how long service will be interrupted, and the expected duration (hours, days) of the capacity shortage should be given to the member system managers.

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7. The EO Division Director coordinates with other Kentucky electric utilities in planning the announcement of a request for a general voluntary load reduction.

8. The Environmental Affairs Manager requests the Kentucky Public Service Commission (PSC) and the U.S. Environmental Protection Agency (EPA) to lift all environmental restrictions in order to operate generating units as efficiently as possible.

Action List:
The following action list will be implemented in the order given until the capacity shortage is corrected.

1. Initiate direct load control to reduce consumer load.

2. Interrupt service to loads with interruptible rates.

3. The EO Division Director advises the M&C Division Director to initiate EKPC's **Load Reduction Procedure**.

4. The Production Division Director orders the shutdown of scrubbers if permitted by law. Buy emission allowances to maintain environmental compliance.

5. If time and system conditions permit, coordinate with neighboring companies to initiate system wide voltage reduction. Voltage schedules at the generating plants shall be as coordinated with neighboring utilities.

6. If time and system conditions permit, ask member systems to initiate voltage reduction by using the substation voltage regulators.

7. The EO Division Director advises the M&C Division Director of the need for media appeal for a general voluntary load reduction.

8. The M&C Division Director coordinates EKPC's request for a general voluntary load reduction with the member system managers and the media.

9. The EO Division Director requests the President and CEO, in coordination with other Kentucky electric utilities, to contact the PSC and request the Governor's action of declaring a statewide **Energy Emergency** in order that mandatory load reduction can be initiated.

10. The EO Division Director requests the M&C Division Director to contact the member system managers and ask them to initiate mandatory load reduction. Up to twenty percent load reduction, in five percent steps, will be called for.

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When it appears that a request for a general voluntary load reduction request is imminent, the following steps are to be taken:

11. The Risk and Loss Coordinator advises the Kentucky Public Service Commission (PSC) of the situation.

12. The EO Division Director advises ECAR of the situation.

Contacts/Reporting:
- EKPC President and CEO
- Electric Operations Division Director
- Marketing and Communications Division Director
- Production Division Director
- Risk and Loss Coordinator
- Kentucky Public Service Commission
- U.S. Environmental Protection Agency
- Other Kentucky Electric Utilities
- ECAR
- Governor's Office
- Member System Managers
- The Media

Reference Documents:
- Load Reduction Procedure
- Commonwealth of Kentucky - Emergency Operations Plan, Section O
- ECAR Guide No. 1 - Emergency Electric Procedures

Revised Feb. 17, 1995 Reviewed by: Paul Atkinson
July 1, 1994

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Sudden or Unanticipated Capacity Shortage

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BY: Jordan C. Neal
FOR THE PUBLIC SERVICE COMMISSION

SUDDEN OR UNANTICIPATED CAPACITY SHORTAGE

Objective:
To reduce megawatt demand over the time period during which a capacity shortage is experienced and to arrest frequency decay.

Criteria:
A sudden or unanticipated capacity shortage exists when either of the following occurs:

- There is a system disturbance which isolates all or part of the EKPC system from other electric systems to which it is normally interconnected and EKPC loses outside generation sources on which it is depending to meet its load.

or

- EKPC is still interconnected with other electric systems but the system frequency decays to 59.9 Hertz or less.

Procedure:

1. Place all on-line generating units on manual control and take them to their maximum megawatt output.

2. Bring all quick start generation on-line. This includes the Laurel hydro unit and the combustion turbines. Combustion turbines are to be started using the Emergency Start sequence.

3. Initiate direct load control to reduce consumer load demand.

4. Interrupt service to loads with interruptible rates. The EO Division Director notifies the member system managers of EKPC' s actions. Information as to when and how long service will be interrupted, and the expected duration (hours, days) of the capacity shortage should be given to the member system managers.

5. The Electric Operations (EO) Division Director initiates the **Load Reduction Alert** by advising the Marketing and Communications (M&C) Division Director of the capacity shortage and advises the M&C Division Director to initiate EKPC's **Load Reduction Procedure**.

It is recognized that the power system conditions can change so quickly it will not be possible to take manual action to stop or arrest the changes. Steps 6 through 13 fall into this category. They are listed here in the event there is time to initiate manual action before automatic, underfrequency load shedding begins.

6. The Production Division Director orders the shutdown of scrubbers if permitted by law. Buy emission allowances to maintain environmental compliance.

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FOR THE PUBLIC SERVICE COMMISSION

7. Coordinate with neighboring companies to initiate system wide voltage reduction. Voltage schedules at the generating plants shall be as coordinated with neighboring utilities.

8. Ask member systems to initiate voltage reduction by using the substation voltage regulators.

9. The EO Division Director advises the M&C Division Director of the need for media appeal for a general voluntary load reduction.

10. The M&C Division Director, in coordination with other Kentucky electric utilities to the extent possible, notifies the member system managers and the media of EKPC's request for a general voluntary load reduction.

11. The EO Division Director requests the President and CEO, in coordination with other Kentucky electric utilities, to contact the PSC and request they have the Governor's office declare a statewide **Energy Emergency** in order that mandatory load reduction can be initiated.

12. The EO Division Director requests the M&C Division Director to contact the member system managers and ask them to initiate mandatory load reduction. Up to twenty percent load reduction, in five percent steps, will be called for.

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13. Automatic load shedding will begin when the frequency decays to 59.5 Hz. Approximately 5% of the EKPC load will be shed at 59.5 Hz, another 5% at 59.3 Hz, another 5% at 59.1 Hz, another 5% at 58.9 Hz, and another 5% at 58.7 Hz.

14. If frequency is still decaying after automatic load shedding has occurred, and EKPC generation is deficient for its load, the System Operator shall initiate additional load shedding by opening breakers on the transmission system.

15 If frequency decays to 58.2 Hz at the generating plants the Unit Operators are under instructions to isolate the plant from the system. This action is preplanned and does not require additional authorization.

16. If the EKPC system or a part of it has separated from other electric systems, begin system restoration when the isolated system frequency is within synchronizing range.

17. The Risk and Loss Coordinator advises the Kentucky Public Service Commission (PSC) of the situation.

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18. The EO Division Director advises ECAR of the situation.

19. The M&C Division Director will handle all media inquiries. Direct all media inquiries to the M&C Division Director.

Contacts/Reporting:
- EKPC President and CEO
- Electric Operations Division Director
- Marketing and Communications Division Director
- Production Division Director
- Risk and Loss Coordinator
- Kentucky Public Service Commission
- Other Kentucky Electric Utilities
- ECAR
- Governor's Office
- Member System Managers
- The Media

Reference Documents:
- ECAR Guide No. 1 - Emergency Electric Procedures
- ECAR Guide No. 3 - Emergency Procedures During Declining System Frequency

Revised 2/17/95

Reviewed by: Paul Atchison
July 1, 1994

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FOR THE PUBLIC SERVICE COMMISSION

Coal Shortage

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BY: Jordan C. Neal
FOR THE PUBLIC SERVICE COMMISSION

COAL SHORTAGE

Situation and Assumptions:

East Kentucky Power's primary fuel in its electric generating stations is coal. Plans for handling a fuel shortage are restricted to a coal shortage. A regional shortage of coal can be caused by either wide-spread transportation problems or a coal miners' strike. Thirty days prior to an impending coal supply emergency such as an expected strike, EKPC will report its coal supplies to the Kentucky Public Service Commission. EKPC will inventory its coal piles to confirm the recoverable quantity of the coal in storage. If there has been a physical inventory of the stockpile in the past twelve months, the perpetual inventory record can be used for reporting purposes. The days burn in storage will be determined and computed daily in accordance with procedures as detailed below

Coal Supply Computation:

EKPC will estimate its coal supply by dividing the recoverable stockpile balance by the projected average daily burn.

The recoverable stockpile will be determined by using the perpetual inventory records to calculate the system stockpile and then subtracting 31,000 tons of estimated unrecoverable coal. The projected burn for the next 30 days will be divided by 30 to arrive at an average daily burn.

Coal Shortage Alert:

Coal shortages will be classified according to three levels of alert:

Alert Level 1 - Less than 21 days of coal and it is expected that the coal supply will continue to decline

Alert Level 2 - Less than 14 days and it is expected that the coal supply will continue to decline.

Alert Level 3 - Less than 7 days and it is expected that the coal supply will continue to decline.

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The purpose of the procedures for a coal shortage is to reduce energy consumption and conserve coal over the period for which coal supplies drop below established levels.

The Fuel Manager has the responsibility of monitoring and reporting coal supplies.

COAL SHORTAGE -- ALERT LEVEL 1

Objective:
To reduce energy consumption and conserve coal over the period for which coal supplies drop below established levels.

Criteria:
There is a coal shortage due to widespread transportation problems or a general strike in the coal mines or other situations that keep coal from being delivered. Average maximum burn coal supply is **less than 21 days and it is expected that the coal supply will continue to decline.**

Procedure:

1. Take as much diversity power as allowed by contract or agreement.

2. Change the dispatch of all generating units to a coal conservation mode.

3. Discontinue all short-term, non-firm energy sales. Make emergency sales only to utilities agreeing to pay back the energy within 12 days.

4. a.) Use as much non-coal fired generation as possible.
   b.) Substitute oil for coal as much as possible.

5. Purchase as much energy as necessary from outside generation.

6. The Risk and Loss Coordinator advises the Kentucky Public Service Commission (PSC) of the situation.

7. The EO Division Director advises ECAR of the situation.

Contacts/Reporting:
- EKPC President and CEO
- Production Division Director
- Electric Operations Division Director
- Fuel Manager
- Environmental Affairs Manager
- Generating Plant Managers
- Marketing and Communications Division Director
- Member System Managers
- Kentucky Public Service Commission
- ECAR

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FOR THE PUBLIC SERVICE COMMISSION

Reference Documents:

- ECAR Guide No. 1 - Emergency Electric Procedures
- Load Reduction Procedure

Revised _____ Reviewed by: Paul C Atkins
July 1, 1994

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COAL SHORTAGE – ALERT LEVEL 2

Objective:
To reduce energy consumption and conserve coal over the period for which coal supplies drop below established levels.

Criteria:
There is a coal shortage due to widespread transportation problems or a general strike in the coal mines or other situations that keep coal from being delivered. All sources from which to purchase power have been exhausted. Average maximum burn coal supply is **less than 14 days and it is expected that the coal supply will continue to decline.**

Procedures:

1. Discontinue all but diversity and emergency energy sales to other utilities. Cut diversity sales as much as allowed by contract and agreement. Make emergency sales only to utilities agreeing to pay back the energy within 7 days.

2. The Environmental Affairs Manager shall request the Kentucky Public Service Commission (PSC) and the U.S. Environmental Protection Agency (EPA) to lift all environmental restrictions in order to operate generating units as coal efficient as possible.

5. The Production Division Director shall order the shutdown of scrubbers if permitted by law. Buy emission allowances to maintain environmental compliance.

6. The Electric Operations (EO) Division Director initiates the **Load Reduction Alert** by contacting the Marketing and Communications Division Director and advising him of the anticipated coal shortage.

7. The Marketing and Communications (M&C) Division Director puts into effect EKPC's **Load Reduction Procedure.**

8. The EO Division Director notifies the member system managers of EKPC' s intent to interrupt service to loads with interruptible rates. Information as to when and how long service will be interrupted, and the expected duration (hours, days) of the capacity shortage should be given to the member system managers.

9. If system conditions permit, coordinate with neighboring companies to initiate system wide voltage reduction. Voltage schedules at the generating plants shall be coordinated with neighboring utilities.

10. If system conditions permit, ask member systems to initiate voltage reduction by using the substation voltage regulators.

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BY [signature]
FOR THE PUBLIC SERVICE COMMISSION

11. The EO Division Director coordinates with other Kentucky electric utilities in planning the announcement of a request for a general voluntary load reduction.

12. The EO Division Director notifies the M&C Division Director of the need for media appeal for a general voluntary load reduction.

13. The M&C Division Director coordinates EKPC's request for a general voluntary load reduction with the member system managers and the media.

14. The EO Division Director requests the President and CEO, in coordination with other Kentucky electric utilities to the extent possible, to contact the PSC and request they have the Governor's office declare a statewide **Energy Emergency**.

Contacts/Reporting:

- EKPC President and CEO
- Production Division Director
- Electric Operations Division Director
- Generating Plant Managers
- Fuel Manager
- Environmental Affairs Manager
- Marketing and Communications Division Director
- Member System Managers
- Kentucky Public Service Commission
- ECAR
- U.S. Environmental Protection Agency
- Other Kentucky Electric Utilities
- Governor's Office
- The Media

Reference Documents:

- ECAR Guide No. 1 - Emergency Electric Procedures

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SECTION 9 (1)
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FOR THE PUBLIC SERVICE COMMISSION

Revised _____

Reviewed by: Paul C Atkinson
July 1, 1994

COAL SHORTAGE – ALERT LEVEL 3

Objective:
To reduce energy consumption and conserve coal over the period for which coal supplies drop below established levels.

Criteria:
There is a coal shortage due to widespread transportation problems or a general strike in the coal mines or other situations that keep coal from being delivered. Average maximum burn coal supply is **less than 7 days and it is expected that the coal supply will continue to decline**.

Procedures:

1. Discontinue all emergency sales to other utilities.

2. The Electric Operations (EO) Division Director asks the Marketing and Communications (M&C) Division Director to coordinate with other Kentucky electric utilities and request the member system managers to initiate mandatory load reduction. Up to twenty percent load reduction, in five percent steps, will be called for.

Contacts/Reporting:
- EKPC President and CEO
- Electric Operations Division Director
- Marketing and Communications Division Director
- Member System Managers
- Kentucky Public Service Commission
- ECAR
- U.S. Environmental Protection Agency
- Other Kentucky Electric Utilities
- Governor's Office
- The Media

Reference Documents:
- ECAR Guide No. 1 - Emergency Electric Procedures, Appendix A

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Load Reduction Procedure

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LOAD REDUCTION PROCEDURE

Objective:
To reduce megawatt demand at EKPC facilities over the time period during which a capacity shortage is anticipated.

Criteria:
This procedure is implemented when an ***Load Reduction Alert*** is issued. The Electric Operations (EO) Division Director has the responsibility of issuing a Load Reduction Alert.

Procedure:
1. The Marketing and Communications (M&C) Division Director receives notice from the Electric Operations Division Director of a capacity shortage.
2. The M&C Division alerts employees to the need for internal load reduction.
3. Each Division Director is responsible for seeing that their employees are participating in achieving the largest load reduction possible while still maintaining the service of the facility and not unduly jeopardizing safety.
4. Examples of load reduction are:

- turning off all but a minimum of indoor and outdoor lighting
- turning off microcomputers, printers, copiers and other office equipment except as they are being used
- in the winter, setting thermostats to 68 degrees, and in the summer to 76 degrees
- turning off auxiliary equipment at generating plants except as needed to maintain safety and reliability

Contacts/Reporting:
- Electric Operations Division Director
- Marketing and Communications Division Director
- All Division Directors

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Reviewed by: Paul C Atkins
July 1, 1994

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APPENDIX

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Commonwealth of Kentucky
Emergency Electric Procedures
Annex P

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APPENDIX P-1
ENERGY ORGANIZATION

Kentucky Department of Mines and Minerals Ironworks Pike Lexington, Kentucky 40501	(606) 254-0367 FAX (606) 255-4457
Public Service Commission Schenkel Lane Frankfort, Kentucky 40601	(502) 564-3940 FAX (502) 564-7279
Kentucky Petroleum Council 403 State National Bank Building Frankfort, Kentucky 40601	(502) 875-3742 FAX (502) 875-1171
Kentucky Coal Association 340 South Broadway Lexington, Kentucky 40504	(606) 233-4743 FAX (606) 233-4745
ECAR East Central Electric Reliability Coop P. O. Box 102 Canton, Ohio 44701	(216) 456-2488 FAX (216) 456-3648
Kentucky Division of Energy Natural Resources and Environmental Protection Cabinet 691 Teton Trail Frankfort, Kentucky 40601	(502) 564-7192 FAX (502) 564-7484
Governor's Office of Coal and Energy Policy Spindletop Research Park Ironworks Pike Lexington, Kentucky 40501	(606) 252-5535 FAX (606) 255-4457
Kentucky Petroleum Marketers Association 622 Shelby St. Frankfort, Kentucky 40601	(502) 875-3758 FAX (502) 875-4515
Kentucky Propane Gas Association Kings Daughters Drive Frankfort, Kentucky 40601	(502) 875-2686 FAX (502) 227-7004

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SUMMARY OF MOTOR FUEL CONTROL AND DISTRIBUTION OPTIONS

ALTERNATIVE	CONCEPT	PRINCIPAL ADVANTAGES	PRINCIPAL DISADVANTAGES	SUMMARY
FUEL RATIONING	Control fuel sales at retail level through a variety of strategies:			
• Coupons	• Ration coupons must be presented when purchasing gasoline.	Permits selective control & conservation of fuel supply; coupons serve as sales record & may substitute for payment in case of critical workers.	Administrative headaches	Strict rationing may be necessary if autos are not impounded. Such controls will almost certainly be needed following an attack, however.
• Odd/Even	• Sales to cars with odd (even) license plates are permitted only on odd-(even-)numbered days; unrestricted purchases permitted in risk area on third day of evacuation.	Smooths peak evacuation flow & limits gas lines.	Might be perceived as inequitable; could limit draining of risk area gas inventories over three-day period.	Possibly useful as a means of spreading departure times, if carefully coordinated with other scheduling techniques
• Purchase Limits	• No single purchase shall exceed a pre-specified amount (for instance, 10 gallons)	Permits more equitable distribution under shortage conditions.	Prevents draining of risk area inventories	Possibly useful in host area; should not be applied in risk area.
• Minimum Sales Levels	• Purchases permitted only if gas in tank is below a pre-specified level (i.e., half full).	Shortens lines by preventing "topping-off"; limits inventory in gasoline tanks.	Potentially frustrating if limit is low; ineffectual if limit is set high.	Of limited importance; if used, different limits should be established in host & risk areas (i.e., half tank in host area, 3/4 tank in risk area).
DISTRIBUTION SYSTEM ADJUSTMENTS	Redirect fuel supplies to host area bulk storage facilities & gasoline stations			Redirection of supplies in secondary distribution must be accomplished. The exact means will depend on state, regional & local circumstances.
• Redirect Flow From Risk to Host Area Terminals & Stations	• Take supplies directly from pipeline terminals & refineries to all host area facilities & gas stations.	Gets fuel where needed with minimum disruption of existing network; minimizes vulnerability of secondary inventories.	Increased risk area exposure for distributors.	
• Bypass Risk Area Terminals	• Intercept pipeline flows before risk area terminals are reached.	Minimizes risk area exposure of distributors; could improve distribution efficiency.	Disrupts normal flow patterns.	

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ALTERNATIVE	CONCEPT	PRINCIPAL ADVANTAGES	PRINCIPAL DISADVANTAGES	SUMMARY
PRODUCT INTEGRATION	Speed distribution & simplify redirection procedures by permitting comingling of product:			
• Permit Inter-company Transfers	• Drop brand distinctions & allow retail stations to accept deliveries from any producer.	Increases flexibility in developing reallocation schemes.	Potential abuse; possible regulatory limitations; additional administrative headaches.	Should be encouraged where consistent with state-level redistribution plans. Any regulatory bars to this practice should be lifted, but most firms prefer to maintain integrity of their systems and this should not greatly inhibit flow.
• Eliminate Product Distinctions	• Drop product separation & permit intermingling of regular, unleaded & premium products.	Simplifies and speeds distribution somewhat.	Reduced engine performance.	Probably unnecessary; permit only if distribution system bottlenecks develop.
• Eliminate Restrictions on Use of Leaded Gasoline	• Allow leaded gas to be used in all autos.	Ensures that late-model cars will be able to refuel along evacuation route.	If permitted over extended period, damage to catalytic converter will result.	Permit during three-day relocation period.
CONSERVATION MEASURES	Introduce various fuel conservation measures:			
• Limit Use of Relocated Vehicles	• Impound risk area autos once host area is reached or institute temporary pass system.	Significant fuel conservation potential; simplifies security procedures.	Perceived infringement of personal liberties.	Has been recommended for public safety purposes & should also result in significant fuel savings.
• Use Buses Whenever Possible	• Use buses extensively in critical worker commute & host area transportation.	Fuel conservation.	Worker commute will require additional organization and scheduling.	Use buses whenever possible, both in commuting critical workers & in providing host area transportation.

ANNEX P
ENERGY SUPPLY

I. SITUATION AND ASSUMPTIONS

A. Severe weather conditions, such as blizzards, ice storms, heat waves or tornadoes may cause shortages in energy supplies by disrupting transportation services, interfering with delivery through transmission lines, or by forcing higher than normal usage of energy for heating or cooling.

B. Various technological, man-made, or natural incidents, including terrorism, employee strikes, or international conflict could cause curtailment of energy supplies.

C. The relocation of the U.S. population from risk areas to host areas, in the event of Crisis Relocation, will necessitate a reallocation within the energy distribution system.

D. A major attack on the United States could seriously cripple Kentucky by making energy resources extremely scarce. Rationing to conserve Kentucky's energy resource would have to be undertaken immediately.

E. The involvement of the U.S. in a major conventional war would cause the reallocation of energy resources forcing rationing or voluntary curtailment of their use.

F. The only energy resources Kentucky is self sufficient in are coal and electricity, all other energy sources must be imported to some extent.

G. Depending on the situation, national or state wide rationing, or conservation, may be imposed; this could cause activation of Annex O Economic Stabilization and Resource Management. In order to activate Annex O, new federal legislation would have to be enacted.

II. MISSION

The purpose of this annex is to provide for the organization, coordination, and direction of all energy resources within the state for use during an emergency. This is done by defining and establishing responsibility and authority in energy matters at the various levels within the state.

III. DIRECTION AND CONTROL

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A. The Division of Energy, Department for Natural Resources, Natural Resources and Environmental Protection Cabinet (NREPC), in coordination with utilities under the jurisdiction of the Public Service Commission will control, direct and coordinate all energy needs and establish orderly procedures for furnishing emergency preparedness requirements to energy representatives. This will be done by issuing regulations under the authority of KRS 39.400 and KRS 39.409.

B. The energy industry will form a composite organization of adequate size, with a qualified and competent staff, to direct the emergency preparedness operations of their respective industries.

C. Each industry, commercial establishment, and warehouse facility will conduct its own operation under guidance issued by the NREPC.

D. If the federal control of energy sources is established by the federal government, Kentucky will put into effect its Emergency Resource Management Plan. (See Annex O).

IV. CONCEPT OF OPERATIONS

A. State Government

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1. The Natural Resources and Environmental Protection Cabinet (NREPC) is assigned the responsibility of operating the State Energy Resource Management Board that directs, controls, coordinates and establishes operating procedures for the energy organization at all levels. In carrying out this plan, the board will be assisted by the Public Service Commission and the Department of Mines and Minerals.

2. The Secretary of NREPC will be director of the State Energy Resource Management Board. The board will advise the director of problems and recommend procedures.

3. The Energy Resource Management Board will consist of a Chairman and five members. The Director of the Board will serve as chairman. Other members will represent solid fuels, petroleum, natural gas, electric power and supporting resources.

4. The Energy Resource Management Board will have three advisory committees. These will be:

a. Petroleum Products Committee. It will be chaired by the Secretary of the NREPC or assistant, and have representatives of the petroleum industry.

b. Gas and Electrical Service Committee. It will be chaired by the Chairman of the Public Service Commission and have representatives of the gas and electrical industry.

c. Coal Products Committee. It will be chaired by the Commissioner of Mines and Minerals and have representatives of the coal industry.

5. Plans for individual emergency energy supplies will be developed as follows but will be coordinated with NREPC.

a. Petroleum Products

The responsibility for the allocation of petroleum products in an emergency is vested in the Kentucky NREPC by state statute.

b. Gas and Electricity

1) The responsibility for the allocation of gas and electricity for jurisdictional utilities is vested in the Public Service Commission by statute.

2) The Public Service Commission will develop a natural gas and electrical allocation plan for jurisdictional utilities.

c. Coal

The responsibility for the management of a coal shortfall is vested in NREPC, Division of Energy by statute. Common procedure is for Public Protection and Regulation Cabinet, Department of Mines and Minerals and the NREPC to coordinate the allocation. The development of these allocation plans will be the responsibility of the NREPC.

6. LP gas is not regulated by any state agency. The state can only make suggestions and put into place a set-aside program for direct

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supplies to be made available for critical facilities or hardship needs.

B. Local Government

1. County governments are responsible for the coordination of all energy resources within their respective areas, as directed by the NREPC.

2. Each County Judge/Executive will appoint an Energy Resource Coordinator to cooperate with the state board.

C. Industry

The energy industries are responsible for operating their systems and facilities to provide the maximum possible service within their capabilities, and fulfill essential needs as specified by appropriate governmental authorities. This includes responsibility for management, continuity, personnel and facility protection, conservation of supplies, restoration of damaged lines and terminals, and the expansion or improvement of systems as practical and as necessitated under emergency conditions. In order to carry out these responsibilities, it will be necessary to organize and operate a composite headquarters. This will consist of the state/industry/transportation organization of petroleum, gas, coal and electrical sections. Operational control of the energy industries will remain, at all times, with the responsible officials of the industry.

D. In the event of an energy shortage, the following general steps can be taken by the Commonwealth, as appropriate.

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1. Minimize transportation impediments.

   a. Request the assistance of local and state agencies in road clearing activities during periods of snow and ice (including clearing private driveways if necessary for delivery of fuel supplies).

   b. Request through transportation companies involved or appropriate federal agencies the priority movement of petroleum products, coal, or other fuels on rail and waterways.

   c. Work with appropriate state and federal

agencies to remove restrictions on highway transportation (e.g., weight limits, drivers hours, route restrictions, etc.) which may be removed without causing safety or other problems.

d. Assist suppliers and consumers in locating transportation for petroleum products, coal, or other fuels.

2. Request all County Judge/Executives, and Mayors to develop local programs designed for energy conservation, particularly in the commercial sector. Urge energy savings goals of 40 percent and 20 percent depending on the relationship to meeting "essential human needs."

3. Request that state and other offices be closed one day per week by extending the normal working day the other four days.

4. Request the Cabinet for Human Resources ensure that claims and benefits for unemployed workers are taken and promptly processed.

5. Meet with representatives of suppliers of affected energy sources to fully assess the problem.

6. In a strike situation, utilize state police and national guard to escort trucks carrying fuel supplies.

E. The following actions may be taken with regard to specific energy sources.

1. Propane and Petroleum Products

a. Request U. S. Department of Energy to require regional shifts of petroleum products into Kentucky.

b. Request consumers of propane and petroleum products to maximize conservation efforts during shortage period.

c. Initiate reduction measures for state government facilities.

d. Promote substitution of other fuels where feasible. Aid in securing variances to air pollution regulations so facilities which are equipped to burn coal may do so.

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e. Request implementation of special relief measures, as appropriate from the federal government.

f. Interact with U.S. Department of Energy on emergency demand constraint measures which may be implemented. Considerations may include:

1) gasoline rationing.

2) mandatory boiler efficiency standards.

3) mandatory reduction of parking spaces.

4) mandatory temperature settings.

2. Natural Gas

a. Request the general public to maximize conservation efforts (requests for conservation to be intensified as shortage increases).

b. Initiate demand constraint measures at state government facilities.

c. Promote the use of alternate fuels where feasible.

1) Aid in securing variances to air pollution regulations so facilities which are equipped to use coal may do so.

2) Switch to petroleum products or propane.

3) Assist gas utilities to get propane for peak shaving plants.

d. Request the implementation of special relief measures as appropriate from federal government.

e. Implement a natural gas pooling operation where feasible.

f. Interact with U. S. Department of Energy on emergency demand constraint measures which may be implemented. Considerations may include:

1) gas rationing.

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2) mandatory boiler efficiency standards.

3) mandatory temperature settings.

3. Coal

a. Voluntary cooperation of suppliers to resolve problems.

b. Request coal users to maximize conservation efforts.

c. Initiate demand restraint measures at state government facilities.

d. If necessary, utilize coal from state owned stockpiles for essential needs.

e. Request the implementation of special relief measures as appropriate from federal government (e.g., mandatory coal allocation program, Taft-Hartley Act).

f. Promote the use of alternate fuels where feasible.

g. Aid in securing temporary variances to air pollution regulations for facilities which are unable to obtain sufficient quantities of compliance coal.

h. Interact with U. S. Department of Energy on emergency demand constraint measures which may be implemented. Considerations may include:

1) coal rationing.

2) mandatory boiler efficiency standards.

3) mandatory temperature settings.

4. Electricity

a. Request users to maximize conservation efforts in coordination with utilities emergency plans.

b. Initiate demand restraint measures at state government facilities in response to emergency measures initiated by utilities.

c. Promote the transfer of electricity to shortage areas.

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d. Request the implementation of special relief measures as appropriate from state and federal utility commissions (e.g., mandatory purchases and sales of power at specified stockpile levels).

e. Deal with essential needs as appropriate.

f. The Public Service Commission has the authority for approving electricity curtailment plans for jurisdictional utilities.

g. Interact with U. S. Department of Energy on emergency demand constraint measures which may be implemented. Considerations may include:

1) electricity rationing.

2) mandatory boiler efficiency standards.

3) mandatory temperature settings.

F. Operational Phases

1. Preparedness Phase

a. Develop standard operating procedures.

b. Develop a system of determining energy resources available after an incident.

c. Ensure that necessary forms are available in the event of an emergency.

d. Ensure that all personnel concerned are familiar with their responsibilities.

e. Take part in tests and exercises as required by state authorities.

f. Upon instructions from KyDES Executive Director or representative shift to Response Phase.

2. Response Phase

a. Increased Readiness Period

1) Complete all steps not completed under Preparedness Phase.

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2) Inform energy industry personnel to prepare for implementation of this annex.

3) Prepare to maintain control of supply and procurement of energy resources.

b. Emergency Operation Period

1) Natural, man-made and technical disasters

a) Complete all steps not completed under Preparedness Phase.

b) Commence life saving and damage limiting operations.

c) Issue fuel rationing orders if necessary.

d) Advise the Governor on current and continuing functions, problems, and activities in the energy area.

e) Assist the Governor in carrying out the policies, plans, and instructions pertaining to energy resources.

f) Advise Governor on state energy resource needs.

g) Maintain current information on the availability of energy resources within the state.

h) Approve request for energy resources based on current policies.

i) Issue authorization for necessary use of energy resources to essential users.

j) Determine the best utilization of available energy resources supply.

k) Keep records on workers made available, work undertaken, and hours worked.

l) Upon instructions from KyDES Executive Director or representative

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shift to Recovery Phase.

2) Nuclear Conventional War

a) Relocation Period

(1) Complete all steps not completed under Preparedness Phase or Increased Readiness Period.

(2) Commence operations (See Natural Disaster Energy Operation Period).

(3) Inform energy industry personnel that rationing may be put into effect.

(4) Issue fuel rationing orders if necessary.

(5) Upon instructions from KyDES Executive Director or representative shift to Attack Period or Recovery Phase.

b) Attack Period

(1) Provide fuel for the operation of community fallout shelters if so instructed.

(2) Take shelter. During this phase, action will be limited to in shelter activities unless otherwise directed by the state DES Coordinator.

(3) Upon instructions from KyDES Executive Director or representative shift to Recovery Phase.

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3. Recovery Phase

a. Carry out operations as directed by EOC to save lives and property.

b. Revert to Increased Period or Preparedness Phase upon direction of the EOC.

c. Advise the Governor on current and continuing functions, problems, and activities in the energy area.

d. Assist the Governor in carrying out the policies, plans, and instructions pertaining to energy resources.

e. Advise Governor on state energy resource needs.

f. Maintain current information on the availability of energy resources within its jurisdiction.

g. Approve request for energy resources based on current policies.

h. Issue authorization for necessary use of energy resources to essential users.

i. Determine the best utilization of available energy resources supply.

j. Upon completion of the operation survey organization for cost of preparing for and conducting the operation.

k. Critique operation for updating plan and standard operating procedures.

l. Upon instructions from KyDES Executive Director or representative shift to Preparedness, or Increased Readiness or Recovery Phase.

m. Remember cleanup and restoration of property often continues long after emergency personnel have returned to normal operations.

G. Increased Readiness Levels will be initiated by KyDES based on information furnished by FEMA. The required actions are explained in Annex D of this plan.

H. Reports concerning the availability and need of all types of energy in the state will be made to KyDES in conformity with Annex U.

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V. ADMINISTRATIVE SUPPORT

A. The Energy Management Board will request additional administration support state government and the energy industry.

B. Augmentation and Training of emergency organization will be carried out as set forth in FEMA CPG 1-7 -

"Guide for Increasing Local Government Civil Defense Readiness During Period of International Crisis."

VI. GUIDANCE PUBLICATIONS

A. Civil Defense and Emergency Planning for the Petroleum and Gas Industries, FEMA Publication

B. Prototype Plans for Production and Maintenance of Electric Power FEMA CPG 2-8.6

VII. APPENDIX

P-1 Energy Organization

P-2 Summary of Motor Fuel Control and Distribution Options

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ECAR GUIDE NO. 1
EMERGENCY ELECTRIC PROCEDURES

Approved by the Coordination Review Committee
April 9, 1980
Revised October 15, 1986

Approved by the ECAR Executive Board
May 1, 1980
Revised November 6, 1986

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ECAR GUIDE NO. 1
EMERGENCY ELECTRIC PROCEDURES

I. GENERAL

It is recognized that in the event there are shortages or disruptions in electric supply, each ECAR company should have an emergency procedures plan to implement, as may be necessary, to restore and maintain service to the extent possible under the circumstances. These procedures will vary to some degree between companies to cover local conditions and individual system characteristics. The purpose of this Guide is to provide an outline which the ECAR systems can use to develop specific procedures to deal with various types of electric emergencies.

Industrial and large commercial customers are expected to develop internal load curtailment procedures if requested to do so by their serving utility and place in effect such procedures when requested to do so by the serving utility or when ordered to do so by the Governor or other authorized regulatory body.

To assure equitable treatment of customers served directly or indirectly by a utility, its wholesale customers (purchasers for resale) are expected to follow the practices and procedures outlined in this Guide when called upon to do so by the appropriate regulatory body.

Electrical emergencies can be of varying duration and causes, as such, they generally require different emergency procedures to be placed in effect. Such emergencies or supply deficiencies can be short-term or long-term, anticipated or unanticipated.

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Essential health and safety customers will be given special consideration as might be mandated by the State Utility Commission or other duly constituted authority having jurisdiction. Such customers should install emergency generation equipment if continuity of service is essential. In the case of customers supplied from two utility sources, only one source will be given special consideration. Other customers, who in their opinion have critical equipment, should install emergency battery or portable generating equipment.

Electric utilities shall promptly advise the State Utility Commission and other appropriate authorities having jurisdiction within the systems' service area of the nature, time, and duration of all implemented emergency conditions and procedures which affect normal service to customers. It is expected that commissions may order the implementation of additional procedures or the termination of the procedures previously employed when circumstances so require.

As may be appropriate in accordance with the nature of the occurring or anticipated emergency, the following procedures will be initiated by each system.[1]

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[1] A "system" is defined as the control area of a utility. The "control" area is defined as: "The area of operation of an electric utility irrespective of political boundaries to which a common generation control scheme is applied."

II. SHORT-TERM CAPACITY SHORTAGES

A. Short-Term Capacity Shortages Following System Separation

In the event of a sudden transmission separation which isolates all or parts of a system or systems from the interconnection and results in the area so isolated being deficient in generation, only unloaded capacity on line (spinning reserves), and/or load shedding by underfrequency relays will be effective in arresting the frequency decline.

If the generation deficiency is of such magnitude that the rate of frequency decay is too large for the on-line spinning reserve to be effective, automatic underfrequency load shedding will occur. The underfrequency load shedding schedule within the ECAR area, as set forth in ECAR Document No. 3 is as follows:

STEP	FREQ-HZ	% LOAD SHED
1	59.5	5.0
2	59.3	5.0
3	59.1	5.0
4	58.9	5.0
5	58.7	5.0

If the spinning reserve of one or more of the load shedding steps in combination with the spinning reserve is successful in arresting the frequency decline, one or more of the following steps will be taken, as appropriate, to return the isolated area frequency to within synchronizing range of the interconnected network.

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- Service will be interrupted to controlled service loads and to loads served under interruptible tariffs.

- Distribution voltage may be reduced, if applicable, but not more than five percent.

- Manual load shedding of firm customers' loads will be instituted.

Once the frequency of the isolated area is returned to synchronizing range of the interconnected network, system restoration will proceed as outlined in Section III-C, Coordinated System Restoration-General Principles.

B. Short-Term Capacity Shortages—No System Separation

In the event of an unanticipated widespread deficiency of generation, the system frequency of the entire interconnection can be expected to slowly decline until a balance of load and generation is reached at a subnormal frequency or automatic underfrequency load shedding occurs. If possible, the frequency decline should be arrested to prevent the operation of the automatic underfrequency load shedding as shedding load in areas that are not deficient can cause transmission to overload. The systems in ECAR should provide in their Emergency Procedures, the actions to be taken during such an event. These procedures should include the action to be taken when the system itself is experiencing a capacity deficiency or when its neighboring systems are experiencing capacity deficiencies. In either case, the object of the action should be to restore the system frequency to normal and return all interchange to schedule.

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Action to be considered.

1. To restore the balance between load and generation if the control area is deficient

   - Load all available generation resources.

   - Enter into emergency purchases to the extent that generation resources are available and tie line loading will allow.

   - Interrupt service to controlled service loads and to loads served under interruptible tarriffs and if applicable reduce voltage.

   - Interrupt service to firm customers.

2. To assist another control area that is experiencing a capacity deficiency.

   - Provide additional assistance by scheduling emergency sales to the deficient system(s) to the extent that generation resources can be made available and tie line loading will allow.

   - Interrupt service to controlled service load and to loads served under interruptible tariffs, and if applicable reduce voltage to increase emergency sales if the deficient system has taken similar emergency action.

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C. Anticipated or Predictable Short-Term Capacity Shortages

In the event an emergency condition of short-term duration is anticipated or predicted which cannot be relieved by sources of generation within or outside the utility's service area, the following steps will be taken at the appropriate time and in the order appropriate to the situation:

1. The internal demand of generating plants and other facilities owned by the utility will be reduced to the maximum extent possible consistent with the maintenance of service.

2. During the hours of maximum system demand, available load management procedures will be implemented to controlled service loads and to loads rendered service under interruptible rates in accordance with approved tariffs.

3. If provisions are available to do so, reduce voltage, taking into consideration its effectiveness as a load relief measure and the effect on customer's equipment and service.

4. Voluntary load reductions will be requested of large commerical and industrial customers by procedures established in their respective curtailment plans.

5. Voluntary curtailment of all customers will be requested through appropriate media appeals.

6. Mandatory load curtailment steps will be implemented only on the order of the Governor or other duly constituted authority. The serving utility in executing these actions under said order, is relieved of any liability as to their consequences to life, health, or property.

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- Interruption of selected distribution circuits during the period(s) of maximum system demand while minimizing, to the extent practicable, interruption to facilities which are essential services.

- Mandatory load curtailment of large commercial and industrial customers by procedures established in their respective curtailment plans.

III. COORDINATED SYSTEM RESTORATION

If a portion of the ECAR region experiences a wide-spread area outage or becomes separated from the interconnected system, previously agreed upon practices and procedures for system restoration common to all systems will be executed as soon as practicable.

Since the affected area may include part or all of one or more systems and the systems may have different characteristics, a detailed plan cannot be prepared which would be applicable to all. The principles here stated provide the basis for each ECAR system's plan consistent with its own individual needs and characteristics. These plans are to be periodically reviewed to assure their inter-system compatibility.

Three situations can be postulated which will require the invoking of the restoration procedures. They are:

1. The complete blackout of an area due to that area's separation from the interconnection and no generation operating within the area previous to the separation;

2. The complete blackout of an area caused by the area's separation from the interconnection and accompanying loss of

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the generation operating within the area prior to the separation;

3. The separation of an area from the interconnection and a deficiency of generation within area following the separation. Load and generation are brought into balance by the operation of load shedding relays, but the frequency of the area is above or below that of the interconnection.

Each of the three situations stated above requires separate consideration. The principles for restoration on which the ECAR systems have based their detailed plans are as follows:

GENERAL PRINCIPLES

Following an area separation, which may include all or parts of several systems, an immediate assessment of the status of the generation, transmission, and subtransmission facilities in the area should be made, and coordinated procedures to restore the area agreed upon by the affected systems. Every effort should be made to determine the originating cause of the disturbance so as to assure that the remaining network will not be jeopardized when restoration is attempted.

A. Area Isolated, Black and no Generation Operating Within the Area Prior to the Occurrence

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Items to be coordinated are:

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o Sectionalize the subtransmission system within the area into manageable sizes.

o Restore the higher voltage transmission systems as voltage conditions permit and loading conditions require.

- Using the subtransmission as required, begin to reconnect radial load fanning out from areas contiguous to the black-out area.

- continue adding load as conditions allow. After each block of load is restored, make an assessment of the situation in and adjacent to the affected area, so as to determine the loading patterns and voltage conditions within the network.

- At no time allow the amount of load restored to be larger than the spinning reserve capability of the system or systems from which the area is being energized.

B. <u>An Area Isolated, Black and All Generation Operating Within the Area Prior to the Occurrence Lost as a Result of the Separation.</u>

Items to be coordinated are:

- Determine if any of the generation lost can be recovered in time to assist restoring the area. If a cranking source is available at a power plant(s), it should, by prearranged procedures, be placed in service and made available to restart lost generation at the plant. The plant(s) should be brought up to synchronizing speed, and if at all possible, restore local loads.

- If local cranking sources are not available at a plant(s), prearranged transmission paths should be made available as quickly as possible to allow the plants to be restarted and synchronized to the main interconnected system. It should be recognized when planning remote startup transmission paths that due to abnormal voltage and reactive conditions that can exist, the relays protecting the transmission lines may not function properly.

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- As the plants are synchronized, they should be brought to the maximum output available as quickly as possible, subject to transmission capacity and stability constraints so as to provide reserve tie capacity for the reconnection of load within the area.

- As the plants are loaded, area restoration should continue, using the procedures stated in Section A, above. Precautions should be taken to prohibit the uncontrolled automatic closing of transmission circuits by automatic synchronizing devices.

C. <u>The Separation of an Area From the Interconnection With Some or All of the Generation Remaining and the Area Not Completely Blacked Out. Underfrequency Load Shedding has Occurred.</u>

This will probably be the most difficult situation with which to cope if it occurs on a large scale, due to the almost infinite combinations of circumstances that can exist. However, in most cases, the following procedures can be followed.

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The first step of area restoration is to be directed toward restoring frequency and resynchronizing the isolated area to the interconnected system. It is probable that the generation and transmission facilities in the isolated area will be heavily stressed. An uncoordinated attempt by systems in the area to restore frequency and/or load can result in additional cascading operations and other separation; therefore, prior to taking any individual actions, an immediate assessment of the status of generation and transmission facilities in the isolated area should be made, and procedures agreed upon by the affected systems.

The transmission network within the area should be kept intact as long as possible, dependent upon the emergency overload capabilities of the facilities. However, if frequency has declined and remains below 58.5 Hz and additional manual load shedding has not proven successful, controlled separation within the isolated area may be considered.

Items to be coordinated are:

- Transmission lines within the isolated area which have tripped during the disturbance should be left open until they can be closed with assurance that such closure will not jeopardize transmission and generation facilities that have remained in service.

- Synchronization of the isolated area with the interconnected network is to be done as soon as possible in order that the interconnected systems may help support the restoration of any load shed within the area during the occurrence. Synchronization should be done on a controlled and coordinated basis after an assessment of transmission and generation capabilities is made.

- In order to prevent premature uncontrolled automatic reclosure of individual interconnections, provisions must be provided to prevent the operation of automatic synchronizing relays.

- Priority is to be given to providing generating plants start-up power if a plant can be brought up in time to be of assistance to the area.

- Restoration of load that has been shed is to begin only after adequate spinning reserve has been established with

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affected area. Full coordination between the systems involved should be maintained throughout the restoration process to prevent adding load faster than generation and transmission capability permits.

IV. LONG-TERM CAPACITY AND FUEL SHORTAGES

The following actions shall be implemented until it is determined that any or all actions may be terminated. The public shall be immediately advised through appropriate media sources of the implementations of these procedures.

It must be recognized that these procedures will only permit an electric utility and its customers to cope with long-term shortages and are not solutions to the basic problems.

A. Long-Term Capacity Shortages

If an emergency situation of long-term duration arises out of a capacity shortage which cannot be relieved by sources of generation within or outside of the utility's control area the following actions shall be taken in the appropriate order as required:

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1. Curtail use of non-essential energy on premises controlled by the utility.

2. If provisions are available to do so, reduce voltage, taking into consideration its effectiveness as a load relief measure and the effect of customer's equipment and service.

3. During the hours of maximum system demand initiate voluntary energy curtailment by all customers by:

a. Direct contact with industrial and large commercial customers requesting them to implement their electric load curtailment plan.

b. Requesting through mass communication media, voluntary curtailment by all other customers of a minimum of ten percent of their electric use.

4. Mandatory load curtailment steps will be implemented only on the order of the Governor or other duly constituted authority. The serving utility in executing these actions under said order, is relieved of any liability as to their consequences to life, health, or property.

a. Implement procedures to curtail the electric demand of other non-residential customers to the levels and times specified by the utility. Upon prior arrangement and mutual agreement with the serving utility, customers may effect their electric demand reduction on a corporate basis within an individual utility's service area.

b. Implement procedures to curtail further the demand on customers covered in (a) above to load levels and at the time specified by the utility.

c. Interrupt selected distribution circuits during the period(s) of maximum system demand on a rotational basis in accordance with specified load reduction amounts, while minimizing, to the extent practicable, interruption to facilities which are essential services.

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B. Fuel Shortages

In the event of an emergency fuel shortage, such as that which could result from a general coal miners' strike, each system will, two months prior to the expected strike date, report its fuel supplies to the ECAR office based on an established fuel reporting program.

Within thirty (30) days prior to expiration of the coal miners' contract or other impending fuel supply emergency, the utility shall physically inventory its coal piles and confirm the recoverable quantity and quality of the coal in storage. The days' burn in storage will be determined and computed weekly in accordance with the procedures detailed in Appendix A, Determination of Days' Coal Supply and Optimum Fuel Conservation Dispatch.

If a strike occurs and there is no indication of an immediate settlement, each system will initiate its established program for conservation of coal. Such programs will be carried out in the appropriate sequence of steps listed below except where such actions are not applicable.

1. Company Load Reduction and Fuel Optimization

a. Curtail all non-essential uses of electrical energy at company-owned facilities.

b. Discontinue all non-firm sales to utility systems not participating in this or a similar plan except where the dropping of regular customers or serious equipment overload would result or where the transaction is part of a multiparty energy transfer arrangement.

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c. Implement fuel conservation dispatch so as to optimize the generation of electricity from the quantity of fuel available.

2. Appeals to Public

a. Make public appeals to all wholesale and retail customers to reduce further their consumption of electricity. Notify industrial customers and customers who use electricity to process food or raw materials of potential mandatory curtailments.

b. Request the reduction of all outdoor lighting to the minimum level necessary for life and property protection, the eliminiation of all advertisement lighting except for a single luminaire to indicate commercial facilities open after dark, and the reduction by a specified percentage of the number of elevators and escalators in use.

3. Operational Procedures

a. Make maximum purchases of energy from any sources, consistent with prudent system operation.

b. If provisions are available to do so, reduce voltage, taking into consideration its effectiveness as a load relief measure and the effect on customer's equipment and service.

c. Request authorization from the proper authorities to curtail use of air pollution control facilities.

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d. Request authorization from the proper authorities to burn non-conforming coal to order to maximize use of the remaining stockpile.

e. Request industry to utilize industrial-owned generating equipment to supplement utility generation to the maximum extent possible.

f. Where plant design permits and when such supplemental fuels are available, fire oil, or natual gas in lieu of coal.

g. To the extent legal obligations permit, curtail to minimum possible levels all firm sales to utilities not participating in this plan or a comparable plan.

4. Mandatory Curtailment

Mandatory curtailment steps will be implemented only on the order of the Governor or other duly constituted authority. The serving utility in executing these actions under said order, is relieved of any liability as to their consequences to life, health, or property.

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a. All the previously implemented actions shall be continued.

b. Residential customers shall reduce their load by a specified percentage and preferably to a level which is just sufficient to meet only their essential needs.

c. All industrial and commerical customers shall implement procedures for curtailent to a stated percentage of the

customers' corresponding month's use in the previous year. Such usage will be corrected to reflect any abnormalities in the prior year's usage; i.e., strikes, maintenance outages, etc. Facilities whose function is to provide life-support, national, state, or local security, or essential public service, should strive to meet the curtailment level indicated, but shall not be required to do so.

5. Additional Mandatory Curtailments

All industrial and commercial customers shall reduce consumption to levels adjudged appropriate under the circumstances by the serving system, but not less than those required for the protection of human life and safety and protection of physical plant facilities, whichever is greater. Facilities whose functions are to provide life-support, national, state, or local security, or essential public services should strive to meet the curtailment level ordered, but are not required to do so.

6. Curtailment to Minimum Survival Level

a. Curtail all industrial and commerical customers to levels not less than those required for protection of human life and safety or protection of physical plan facilities.

b. As a last resort, implement manual load shedding procedures as necessary to preserve the integrity of the electrical system.

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APPENDIX A

DETERMINATION OF DAYS' COAL SUPPLY AND OPTIMUM FUEL CONSERVATION DISPATCH

The procedure described herein will be used to project the days' coal supply remaining for a system or group of systems and to determine the dispatch required to obtain the maximum days' burn from that supply when the supply falls below a predetermined value.

Data Required

1. All long-term unit deratings and partial outages
2. The weighted average net heat rate (BTU/KWH) of the units within each plant (Weighted by unit capability)
3. The recoverable inventory of coal in storage at each plant (TONS)
4. The heat value (BTU/lb) of the coal in storage at each plant
5. The system's projected average daily coal-fired generation requirements for the coming 60 days (MWH/DAY)
6. Additionl output obtainable at each plant by the firing of supplemental fuel; i.e., oil, natural gas, propane

Algorithm Used

1. A burn factor (TON/MWH) is calculated for each plant based on the weighted average heat rate of the plant and the heat value of the coal in storage.

$$\text{TON/MWH} = \frac{\text{BTU/KWH}}{\text{BTU/lb} \times 2}$$

2. The maximum 24 hour MWH output of each plant is calculated considerating long-term detatings and partial outages

$$\text{MAX MWH/DAY} = (\text{PLANT CAP-DERATE}) \times 24$$

3. The MWH/DAY output obtainable from the coal in storage at each plant is calculated for 10 days, 15 days, and so on to 75 days. If supplemental fuel output is available, it is to be included.

$$\text{MAX MWH/DAY} = \frac{\text{TONS IN STORAGE}}{(\text{TONS/MWH}) \times \text{DAYS}} + \text{SUPP. MWH/DAY}$$

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4. After each calculation of MWH/DAY is made, the value is compared to the MAX MWH/DAY. If the value calculated is greater, the MWH/DAY for that number of days is set equal to the MAX MWH/DAY.

5. The MWH/DAY obtainable for 10 days from each of the system's plants is summed, then from each of the plants for 15 days, 20 days, and so on. The value of each summation is the MWH/DAY output of the systems' coal-fired generation obtainable for that number of days.

6. The system's projected daily average coal-fired generation requirement in MWH/DAY is obtained by estimating the system's total MWH internal load requirement, minus firm purchase, plus firm sales, minus generation from non-critical fueled units and dividing the value obtained by the number of days over which the estimate was made.

$$\text{MWH/DAY} = \frac{\text{LOAD} + \text{SALES} - \text{PURCHASE} - \text{NON-CRITICAL FUEL}}{\text{DAYS}}$$

7. The MWH/DAY generation requirement determined in Step 6 is then compared to the total system MWH/DAY obtainable for specified days as determined in Step 5. The days remaining coal supply are the days at which the MWH/DAY generation requirement equals the MWH/DAY obtainable. If the indicated days remaining supply differs significantly fron the number of days used to obtain the average MWH/DAY in Step 6, Step 6 should be repeated.

To realize the days remaining coal supply determined in Step 7, a system's generating plants must be dispatched such that each plant's daily net energy output (MWH/DAY) when averaged over a calendar week approximately equals the MWH/DAY obtainable from that plant for the number of days determined to be the system's days coal supply. How such a dispatch is affected is best determined by each system.

Jointly owned plants will be treated on a pro rata basis. Each participant will report his share of the plant's total capacity and fuel supply as if it were at a separate location. The average MWH/DAY output requirement and days remaining coal supply of each participant's share will be determined separately.

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Example:

As an example, consider a 1400 MW installed capacity hypothetical system. The system's projected average internal energy requirements are 26,400 MWH/DAY. External firm sales obligations are 1,200 MWH/DAY. The system has four generating plants, one of which is a 500 MW nuclear capable of sustained operation of 90 percent capacity factor. The three coal plants have the capability rating, coal inventory, and heat rate shown below. No condition deratings are considered. The coal in storage at all three plants is assumed to have a heat value of 11,000 BTU/lb.

COAL FIRED PLANTS

PLANT	MW NET CAPABILITY	MAX MWH/DAY	TONS IN STORAGE	HEAT RATE BTU/KWH
1	500	12,000	200,000	9,500
2	300	7,200	75,000	10,000
3	100	2,400	30,000	10,500

From the above data, the MWH/DAY output of each plant is calculated for 5-day increments of days fuel supply remaining and totaled for the system.

MWH/DAY FOR DAYS REMAINING

PLANT	25	30	35	40	45	50
1	12,000	12,000	12,000	11,579	10,292	9,263
2	6,600	5,500	4,714	4,125	3,667	3,300
3	2,400	2,095	1,796	1,571	1,397	1,257
TOTAL	21,000	19,595	18,510	17,275	15,356	13,820

The energy requirement on the coal-fired plants is:

System internal energy requirement	26,400 MWH/DAY
Firm sale obligation	1,200 MWH/DAY
Nuclear unit output (500 x 24 x .9)	-10,800 MWH/DAY
Coal-fired output required	16,800 MWH/DAY

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The coal-fired energy requirement lies between 17,275 MWH/DAY for 40 days and 15,356 MWH/DAY for 45 days. By interpolation the value for 16,800 MWH/DAY is found to be 41 days. To satisfy the loading criteria, each plant's average daily output should be:

Plant 1	11,250 MWH/DAY - 93% CAPACITY FACTOR
Plant 2	4,025 MWH/DAY - 56% CAPACITY FACTOR
Plant 3	1,525 MWH/DAY - 64% CAPACITY FACTOR

Figures 1 and 2 graphically display the calculation.

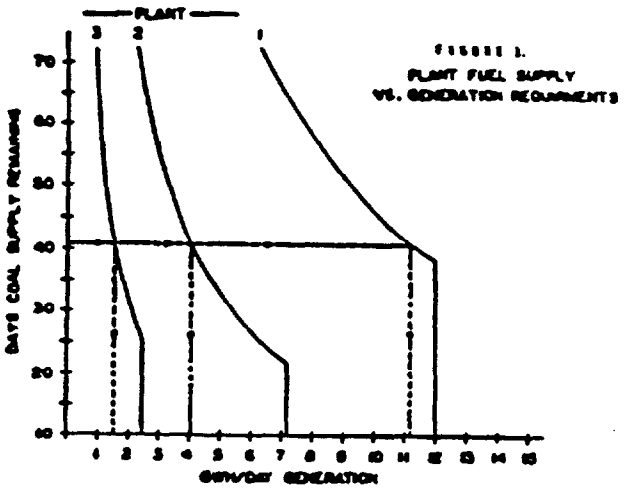

FIGURE 1.
PLANT FUEL SUPPLY
VS. GENERATION REQUIREMENTS

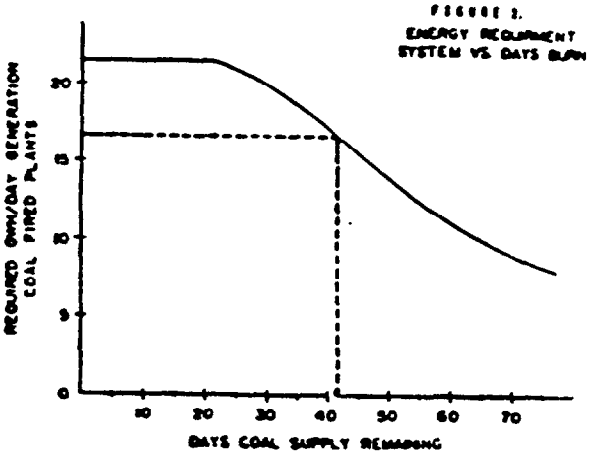

FIGURE 2.
ENERGY REQUIREMENT
SYSTEM VS. DAYS BURN

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APPENDIX B

"ECAR COMMUNICATION PROCEDURES"

In addition to the extensive intersystem communication facilities within the ECAR region, to further augment the reliability of the area, two regional communication facilities are provided. One is a computer controlled data system with terminals in each of the power control centers of the bulk power members of ECAR. The second is a direct-dial private line telephone system with terminals in six control centers designated as Area Coordinators within the region, the ECAR "Hotline" (FIG 1).

In addition to the regional facilities, a terminal of the NERC telephone system is installed in the AEP Control Center. The other six terminations of the NERC "Hotline" appear in one of the control centers in each of the six other reliability regions within the Eastern Interconnection.

The primary purpose of the data network is to exchange status reports of system conditions and to keep the ECAR systems and their neighbors informed of abnormal or unusual situations. It is also used for data collection and the transmission of daily operating reports and administrative messages.

The ECAR Hotline is intended to aid in emergency or near-emergency situations, which cannot be solved by contiguous interconnected system communications.

NERC Operating Guides have been considered in formulating these ECAR Communication Network procedures. These procedures supersede the ones dated 5/10/77.

I. <u>Data Network</u>

Each system is expected to broadcast appropriate information over the network on any situation that occurs which could conceivably jeopardize system reliability such as:

A. Forced outages of major generating units (over 200 MW) and transmission (345 kV and higher) will be reported as soon as practical after their occurrence.

B. The outage of transformers that materially affect the flow patterns or voltage control of the bulk power transmission network.

C. Any acts or threats of sabotage, vandalism, or para-military action in anyway related to utility facilit

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D. Each system will report emergency measures taken such as voltage reduction, load curtailment, or media appeal.

Items of general concern appearing on the ORNS teletype (Operating Representatives of Northeast Systems) will be retransmitted over the ECAR network by AEP. MAIN Reliability Council presently transmits their information directly over the ECAR network.

Daily operating reports as agreed to by the ECAR companies are transmitted over the network. Specific procedures for these reports are issued separately.

II. Area Telephone Network ("HOTLINE")

Any system having an emergency or near-emergency requirement which cannot be met by its contiguous interconnected neighbors will contact his Area Coordinator who then will seek assistance from the ECAR companies via the ECAR "Hotline."

If required, AEP will seek assistance from other Reliability Areas via the NERC "Hotline." Also as appropriate, AEP will seek assistance from ECAR companies for other Reliability Area companies.

The Area Coordinators will locate the ECAR "Hotline" phones such that the System Coordinator can answer it, with the control room dispatchers answering it in his absence.

III. Periodic Testing

To assure operation during emergency conditions, the ECAR Communication Network will be periodically tested as follows:

A. The ECAR "Hotline" telephone network will be tested on a weekly basis. AEP will initiate an "ALL CALL" and will verify that all parties receive the call. AEP will request a different Area Coordinator each week to call each of the other Area Coordinators individually. This will check all aspects of the telephone network.

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B. The entire ECAR communication network will be tested on a monthly basis. The test will be initiated by the ECAR office over the ECAR data network. The message will include the test date and time. Each System Coordinator will respond by contacting their Area Coordinator. The Area Coordinators will record the time of each system's response and forward this information to the ECAR office via the "Hotline." The Area Coordinators with no System Coordinator responsibility shall also respond to the ECAR office. The ECAR office will acknowledge receipt via the data network.

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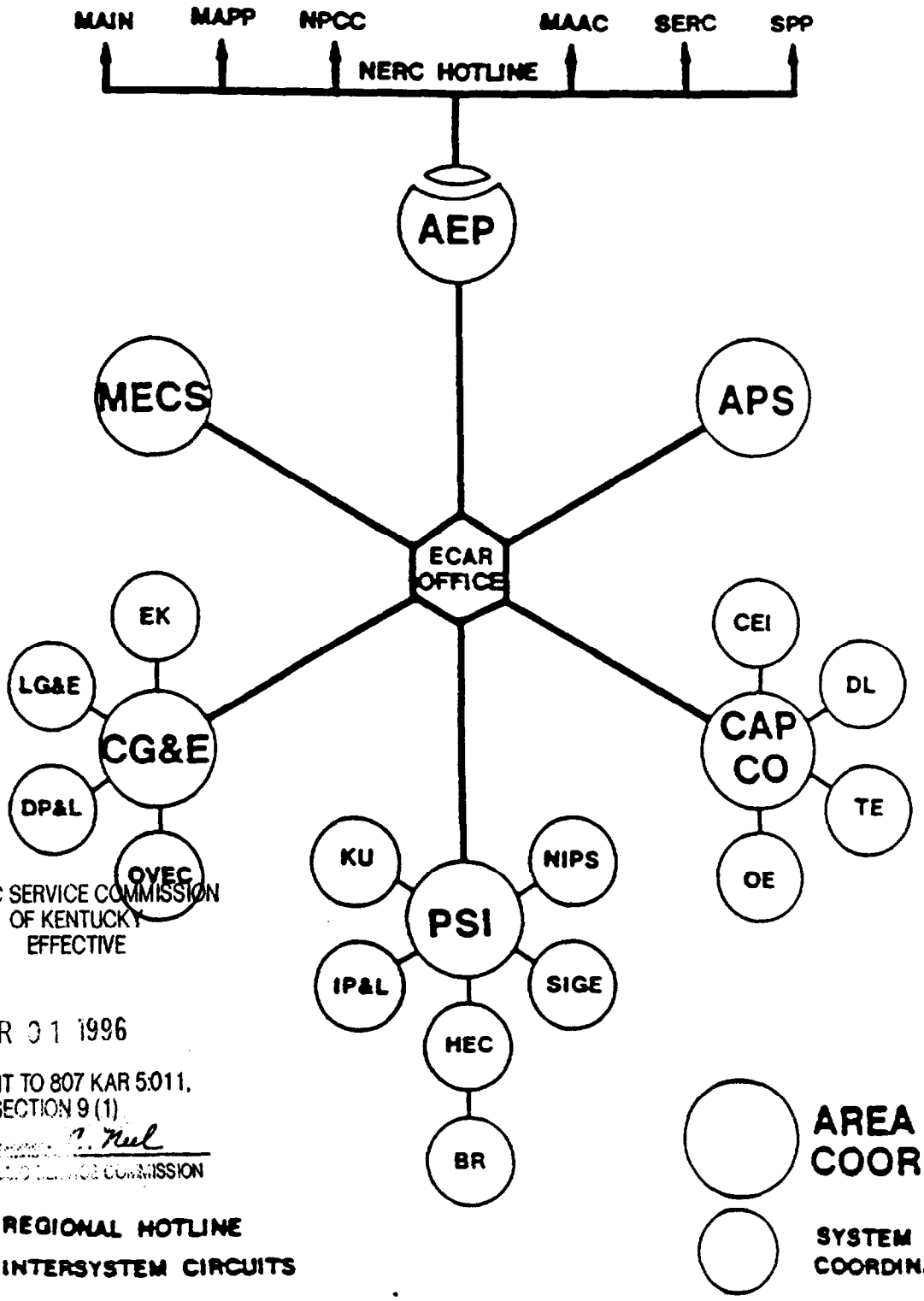
ECAR REGION EMERGENCY NOTIFICATION CHANNELS



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(FIG 1)

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BY: Jackie C. Neal
FOR THE PUBLIC SERVICE COMMISSION

ECAR DOCUMENT NO. 3

EMERGENCY PROCEDURES DURING DECLINING SYSTEM FREQUENCY

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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. Consistent with this objective, studies have been made of system performance under conditions of declining system frequency to determine the need for and the extent of a coordinated program of emergency procedures. This Document presents the program adopted by ECAR members as a result of these studies.

Basis for the Selection of an Emergency Procedures Program

The promulgated goal of ECAR members is to design and build an interconnected network within the ECAR area which would not be subject to widespread system outages as a consequence of a major disturbance and to develop guidelines for its safe and reliable operation. Precautionary procedures, regardless of this stated goal, are required to meet emergency conditions such as system separation and operation at subnormal frequency. In addition, coordination of emergency procedures, including the load shedding practices of ECAR companies, both with respect to each other and with respect to neighboring companies outside ECAR is essential.

The basic principles of load shedding are, in the event of a serious emergency, to:

1. restore the balance between load and generation in the affected area in the shortest possible time and permit the subsequent return to 60 Hz operation, so as to minimize adverse effects on customer service; and

2. minimize the risk of damage to company and customer facilities and equipment.

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The ability to reduce firm customer load in an extreme emergency should be used as a substitute for system facilities in planning or in normal system

operation. It is instead a measure to be taken only after the system has suffered an unpredictable catastrophe which may otherwise lead to widespread system outages.

Program for Emergency Procedures During Declining System Frequency

Between 60.0 - 59.8 Hz, utilize to the extent practicable all operating and emergency reserves. The manner of utilization of these reserves will depend greatly on the behavior of the system during the emergency. Below 59.8 Hz, if the frequency decline is gradual, the system operators, particularly in the deficient area shall invoke all additional non-automatic load relief procedures available to them. These efforts shall continue until the frequency decline is arrested or until underfrequency load shedding relays operate.

For rapid frequency decline only that unloaded capacity on line and automatically responsive to frequency (spinning reserve), and load shedding by underfrequency relays is effective in arresting the decline. The underfrequency load shedding schedule within the ECAR area shall be as follows:

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Step	Freq-Hz	% Load Shed
1	59.5	5.0
2	59.3	5.0
3	59.1	5.0
4	58.9	5.0
5	58.7	5.0

The amount of load shed at each step shall be a nominal 5 percent of the system load prior to the beginning of the underfrequency occurrence. A sufficient number of relays shall be used for each step such that they may be spread across a system thereby not allowing any one step of the schedule to be concentrated in a given area. The underfrequency relays used to achieve the above schedule should be of solid state design and set to operate with no more than a 12 cycle trip delay (see NOTE 1).

If after automatic load shedding has occurred and frequency is still declining, take any action necessary to arrest the decline. This may include additional load shedding, manual or automatic, and coordinated network separations. This action shall be completed before frequency declines to less than 58.2 Hz.

If at any time in the above procedures, the decline in area frequency is arrested below 59.0 Hz, the systems in the low-frequency area shall shed an additional 5 percent of their initial loads repeating on five-minutes intervals until 59.0 Hz is reached. This step must be completed within the time limits outlined in Appendix I of this Document, "Isolation of Power Plants." Furthermore, each system in the low-frequency area shall maintain or increase its generating output to a value corresponding to the full open control valve position until frequency is restored to synchronizing range of the main network.

If all of the above procedures are unsuccessful in increasing the frequency to or above 59.0 Hz, generating units may be isolated in accordance with Appendix I of this Document. In the event it becomes necessary for a system to isolate a generating unit at a frequency higher than 58.2 Hz, or a time period shorter than stipulated in the schedule of Appendix I, such system shall also simultaneously disconnect an amount of load equal to that particular generating unit's output. This amount shall be an additional amount over any load previously shed. Automatic isolation of generating units, if employed, should provide two or three seconds delay to permit temporary frequency excursions below the isolation frequency.

When area frequency has been returned to 59.0 Hz or above, the system or systems in the low-frequency area shall take any action necessary to bring the frequency of the isolated area to within synchronizing range of the main network.

After frequency has returned to synchronizing range the isolated area shall be synchronized with the interconnected systems. Load restoration shall

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then be directed by system operators; normal network operation shall be resumed under the direction of the system operators.

The inter-relationship of the Emergency Procedures Program with the Daily Operating Reserve Requirements which are established in ECAR Document No. 2 is recognized. Operating reserve, as used herein and in ECAR Document No. 2, includes spinning reserve, quick-start reserve, and interruptible loads. Emergency reserve as used herein includes emergency capacity ratings of generation, emergency power obtainable from interconnected systems, load reduction by system voltage adjustment, and load reduction by curtailment of utility company use or special customer uses. As stated, ECAR members will utilize these reserves to the best of their ability. Interruptible loads which are utilized as part of the operating reserve cannot be counted as part of the load shedding obligation. These interruptible loads should be disconnected from the system by automatic devices to assure their removal prior to Step 1 of the load shedding schedule.

In recognition of the dynamic character of the ECAR area and its neighboring systems, the application of all emergency measures during declining system frequency within ECAR should be reviewed on a regular basis and updated as required to meet changing system conditions.

NOTE 1: It is recognized that as of the revision date of this Document, February 7, 1985, electromechanical relays are being used by many of the ECAR systems for their underfrequency load shedding and that it would be unduly burdensome to require an immediate conversion. It is, therefore, agreed that these systems may over time, convert to the solid state electrostatic relay as maintenance requirements and system changes dictate. In the interim, the settings of the electromechanical relays should be made recognizing their sensititivity to the rate-of-change of frequency and tendency to drift from set point.

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APPENDIX I
"ISOLATION OF GENERATING UNITS"

Coordination of emergency procedures during low frequency operations is essential to limit the possibility of damage to equipment and still maintain the reliable operation of generating plants.

Turbine blade damage can occur if turbines are operated at nearly full load conditions during periods of abnormally low frequency. Recognizing the desirability of maintaining service continuity, the System Operators must also recognize that damage to turbines could impede the restoration of service after a major area-wide disturbance.

Isolation of Generating Units During Low System Frequency

After a frequency decline has been arrested, every effort should be made to return the system frequency to 59.5 Hz or above. The System Operators should recognize that Power Plant Operators will probably isolate generating units from the system if automatic or manual means have been unsuccessful in returning the system frequency to above 59.5 Hz.

In order to provide the System Operators with information regarding the probable frequencies at which they could expect isolation of the generating units from the system, the following table has been provided. This table is provided only as a guide for the Operators; specific units, or specific individual company practices, may provide for longer periods of operation below these specified frequencies. However, in considering the possible consequences during an area-wide underfrequency operating condition, it is recommended that the following table be used in developing operating practices other than those that apply to specific generating plants or individual units.

If a generating unit is removed from the system at a frequency higher than or a time less than that shown in the following table, an amount of load equal to the generation being removed from the system must also be shed simultaneously.

60.0 to 59.5 Hz	-	Unlimited
59.5 to 58.5 Hz	-	30.0 minutes before unit isolation can be expected
58.5 to 58.2 Hz	-	7.0 minutes before unit isolation can be expected
Below 58.2 Hz	-	Unit isolation without time delay can be expected

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The above operating time periods and frequencies may be adjusted for specific units for the cumulative effect of blade fatique over the life of the turbine.

If generating units are isolated from the system, every effort should be made by the Plant Operator to maintain unit auxiliaries and, if possible, a local load. This will allow rapid re-synchronizing of the unit to the main network to aid in restoration of the System.

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