

CASE

NUMBER:

99-056

INDEX FOR CASE: 99-056
LOUISVILLE GAS AND ELECTRIC COMPANY
Construct
ACQUISITION OF TWO 164 MEGAWATT COMBUSTION TURBINES

APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND
KENTUCKY UTILITIES COMPANY FOR A CERTIFICATE OF PUBLIC
CONVENIENCE AND NECESSITY FOR THE ACQUISITION OF TWO 164
MEGAWATT COMBUSTION TURBINES

SEQ NBR	ENTRY DATE	REMARKS
0001	02/11/99	Application for acquisition of combustion turbines by LG&E Capital Corp.
0002	02/11/99	Petition of LG&E and KU for Confidential Protection included with Application.
0003	02/15/99	Letter acknowledging KU & LG&Es petition for confidential treatment sent.
0004	02/16/99	Acknowledgement letter.
0005	03/01/99	No def. letter
0006	03/04/99	Letter granting joint petition for conf. filed 2/11/99 by LG&E and KU.
M0001	03/04/99	E BLACKFORD AG-MOTION TO INTERVENE
0007	03/12/99	Order granting Attorney General intervention
0008	03/12/99	Order entered; schedules 6/1 hearing; sets procedural schedule
M0002	03/15/99	MICHAEL KURTZ / KENTUCKY INDUSTRIAL-PETITION TO INTERVENE
0009	03/16/99	Data Request Order; response due 3/23
0010	03/19/99	Data Request Order, info due 4/1/99 from LG&E and KU.
M0003	03/19/99	E BLACKFORD AG-MOTION FOR CHANGE IN PROCEDURAL SCHEDULE
0011	03/24/99	Order granting AG motion for extension to file data requests until 4/9/99.
M0004	03/24/99	KENDRICK RIGGS LG&E KU-MOTION FOR EXTENSION OF TIME
0012	03/26/99	Order granting LG&E an ext. of time until 4/1/99 to respond to 3/16/99 Order.
0013	03/26/99	Order granting motion of the KIUC to intervene.
M0005	04/01/99	E BLACKFORD, AG-REQ FOR INFORMATION BY THE AG
M0006	04/01/99	LG&E KENDRICK RIGGS-AMENDED APPLICATION
M0007	04/01/99	LG&E KENDRICK RIGGS-TESTIMONY OF RONALD WILLHITE
M0008	04/01/99	LG&E KENDRICK RIGGS-MOTION TO AMEND APPLICATION
M0009	04/01/99	LG&E KENDRICK RIGGS-RESPONSE TO PSC ORDER OF MARCH 16 & 19 99
M0010	04/01/99	KENDRICK RIGGS LG&E-PETITION FOR CONFIDENTIAL TREATMENT
0014	04/09/99	Data Request Order; response due 4/19
M0011	04/13/99	LAUREN ANDERSON LG&E-PETITION FOR CONFIDENTIAL TREATMENT
M0012	04/13/99	LG&E LAUREN ANDERSON-RESPONSE TO INFO REQUESTED BY THE AG
0015	04/15/99	Letter to LG&E & KU; petition/hearing request due 5/5/99; place in public file.
M0013	04/15/99	KENDRICK RIGGS LG&E-MOTION FOR INFORMAL CONFERENCE
0016	04/19/99	Order scheduling 4/23 informal conference
M0014	04/19/99	LAUREN ANDERSON LG&E & KU-RESPONSE TO PSC ORDER OF APRIL 9, 99 & PETITION FOR CONFIDENTIAL OF
M0015	04/22/99	DAVID ROTH DYNEGY-PETITION TO INTERVENE
0018	04/26/99	Letter granting pet. for conf. filed 4/13/99 by LG&E and KU.
M0016	04/26/99	KENDRICK RIGGS LG&E & KU-RESPONSE TO MOTION OF DYNEGY FOR INTERVENTION
0017	04/27/99	Order denying Dynegy's motion to intervene.
M0017	04/29/99	DAVID BROWN LG&E & KU-TESTIMONY
0019	05/03/99	IC memo sent to parties; comments, if any, due 5/11/99.
M0018	05/04/99	LG&E & KU LAUREN ANDERSON-AMENDED PETITION FOR CONFIDENTIAL PROTECTION
M0019	05/07/99	KENDRICK RIGGS/LG&E & KU-LG&E & KU'S REQUESTS FOR INFORMATION TO AG
M0020	05/18/99	LAUREN ANDERSON LG&E & KU-SUPPLEMENTAL RESPONSE TO INFO. REQUEST PSC 12-19 AND AG 4-25 & PS
M0021	05/20/99	LIZ BLACKFORD AG-RESPONSE T LG&E & KU REQ FOR INFO TO THE AG
M0023	06/04/99	LG&E & KU-RESPONSE TO JUNE 1, 99 REQUEST AT HEARING
M0022	06/07/99	LAUREN ANDERSON LG&E & KU-PETITION FOR CONFIDENTIAL TREATMENT FOR FILING ON JUNE 1, 99
M0024	06/11/99	LAUREN ANDERSON/LG&E-LG&E BRIEF
M0025	06/15/99	Connie Sewell/ Court Reporter-Hearing held on 6/1/99.
0020	06/16/99	Letter granting pet. for conf. filed 6/7/99 by LG&E and KU.
0021	06/16/99	Letter granting pet. for conf. filed 6/4/99 by LG&E and KU.
0022	07/16/99	Letter granting petition for confidentiality filed 5/04/99.

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LOUISVILLE GAS AND ELECTRIC COMPANY
Construct

KY. PUBLIC SERVICE COMMISSION
AS OF : 07/26/99

PAGE 2

ACQUISITION OF TWO 164 MEGAWATT COMBUSTION TURBINES

APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND
KENTUCKY UTILITIES COMPANY FOR A CERTIFICATE OF PUBLIC
CONVENIENCE AND NECESSITY FOR THE ACQUISITION OF TWO 164
MEGAWATT COMBUSTION TURBINES

SEQ	ENTRY	
NBR	DATE	REMARKS
0023	07/23/99	FINAL ORDER GRANTING CONSTRUCTION



Ronald L. (Ron) Willhite
Vice President - Regulatory Affairs

LG&E Energy Corp.
220 West Main Street
P.O. Box 32030
Louisville, Kentucky 40232
502-627-2044
502-627-2585 FAX

October 4, 1999

Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
Frankfort, KY 40601

RECEIVED
OCT 05 1999
PUBLIC SERVICE
COMMISSION

RE: Response to Commission's Order in Case No. 99-056

Dear Ms. Helton:

In accordance with the Commission's Order in Case No. 99-056, attached herewith are the accounting entries made to the books of LG&E and KU to record the transfer and allocation of the two 164MW combustion turbines acquired from LG&E Capital Corp. Additionally, the Companies engaged the independent engineering and consulting firm of Black & Veatch to establish the market value of the two combustion turbines. A copy of the Black and Veatch appraisal report is attached.

The Black and Veatch appraisal was performed using two widely accepted appraisal methodologies, discounted cash flows and replacement cost to determine market values of \$132,682,000 and \$122,800,000 respectively, excluding Land and Land Rights which are already recorded on the books of KU. Both methodologies resulted in values that exceed the actual book cost of \$121,761,000 to construct the turbines. Therefore, in accordance with the Commission's Order to transfer the units to LG&E and KU at the lower of cost or market, the assets were transferred at cost.

The actual book cost of \$121,761,000 was determined in accordance with the capitalization rules of the USoA. The actual cost of the turbines shown with the same level of detail as was provided in the original application (pages 4 and 5) is as follows (in thousands of \$):

Combustion Turbines	\$ 93,047
Engineering, Balance of Plant	
Procurement and Construction	22,612
Fuel Gas Delivery Systems Modifications	603
Water Treatment Plant	1,756
Service Water System Upgrade	255
Substation	846
Other	<u>2,642</u>
Total	<u>\$121,761</u>

The turbines were included in plant accounts on the books of LG&E and KU on September 16, 1999. The accounting entries made to the books of LG&E and KU to record the transaction and allocation of the turbines and the turbine components already on KU's books allocated to LG&E are attached.

The actual book costs herein and amounts allocated are based on costs incurred and/or accrued through the date of this filing. Additional costs and adjustments, although not expected to be material, may be recorded as such amounts become known and measurable. If changes in the actual book cost amounts vary materially from the amounts included herein, the Company will file an updated response with the Commission.

An original and ten copies are being filed with the Commission. Please contact me if you have any questions about this information.

Sincerely,



Ronald L. Willhite

RLW:dal

Enclosures

cc: Michael Robinson

**E.W. BROWN STATION
PEAKING UNIT VALUATION
B&V Project 64229
August 31, 1999**



BLACK & VEATCH_{LLP}



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1.0 Introduction

Black & Veatch was retained by LG&E Capital Corporation to independently establish the value of two peaking service combustion turbines recently installed at the E.W. Brown generating station. The combustion turbine facilities, CT6 and CT7, were recently installed at the generating plant on behalf of LG&E Capital Corporation and are to be transferred to the regulated operating companies, LG&E Energy and Kentucky Utilities. In support of the transfer, the Public Service Commission of Kentucky requires an estimate of the facility fair market value. Black & Veatch developed independent estimates of the fair market value using two different valuation methods. One estimate used a replacement cost method based on the cost to construct a similar facility at today's construction prices. The second estimate used a discounted cash flow method using projections of plant operating costs and revenues.

The replacement cost method of valuation was deemed appropriate for this analysis because the units only became operational in July of 1999 and the generator technology used reflects current commercially available technology. (No adjustment for functional obsolescence is applicable.) Therefore, it was considered appropriate to estimate the replacement cost for the E.W. Brown peaking units assuming similar equipment to that actually installed with no allowance for depreciation.

Following are brief descriptions of each cost estimating methodology and the assumptions used in their development.

2.0 Replacement Cost Estimate

The replacement cost method of plant valuation assumes that the fair market value of a plant is equivalent to the cost of building a similar plant at today's labor, material and equipment prices. The new plant facilities are assumed to include the following:

- Two combustion turbines with synchronous generators and generator breakers
- Two step up transformers and an auxiliary station transformer
- Control system
- Equipment and controls enclosures
- Grounding and cathodic protection
- Fire protection and fuel supply systems
- An overhead crane and supporting steel
- Interconnecting pipe
- Demineralized water system and building
- Waste collection and treatment
- NOx injection water system
- Fuel gas pipeline
- Landscaping, fencing, access roads, and parking.

The above scope of supply was assumed to be provided on an Engineer, Procure and Construct (EPC) basis. The project site is considered a "brownfield" site with pre-existing facilities. However, no costs were included in the replacement estimate for pre-existing facilities which are shared by the new combustion turbines. Only the costs for expanding/modifying or connecting to these common facilities were included. This cost estimating methodology should result in a conservatively lower capital cost than a "greenfield" site with dedicated ancillary systems.

In addition to the installed cost of equipment, indirect costs were included in the replacement cost estimate. These costs included engineering and procurement services, permit and licensing activities, startup costs, insurance, contractors' profit, and shipping.

The cost of land rights, Rights of Way, land improvements and the Owner's costs for administration and engineering were also added.

Since the new E.W. Brown Station combustion turbines completed their performance testing in July 1999, they are considered to be new and unused.

Table 2-1 presents the estimated costs for an equivalent replacement plant. All costs are assumed to be current day contract costs. The estimated replacement cost for a peaking station comparable to the E. W. Brown CT6 and CT7 facilities is \$124,000,000.

Table 2-1
Simple Cycle Combustion Turbine Facility
Replacement Cost Estimate

Direct Costs	
Procurement Contracts	
Structural	900,000
Mechanical	73,400,000
Electrical	3,200,000
Control	200,000
Chemical	<u>800,000</u>
Subtotal	\$78,500,000
Furnish and Erect Contracts	
Structural	300,000
Mechanical	<u>800,000</u>
Subtotal	1,100,000
Construction Contracts	
Civil/Structural	4,600,000
Mechanical	6,000,000
Electrical/Control	2,400,000
Construction Services	<u>2,700,000</u>
Subtotal	15,700,000
Total Contracts	95,300,000
Spare Parts	<u>900,000</u>
Total Direct Cost	96,200,000
Indirect Costs	
General Indirects	\$4,100,000
Engineering	5,600,000
Construction Management	3,700,000
AFUDC	2,400,000
Land & Land Rights	1,200,000
Contingency and Fees	<u>10,800,000</u>
Total Indirect Costs	27,800,000
Total Capital Costs	<u>\$124,000,000</u>
Note:	
Assumes two (2) generic F-Class combustion turbines.	

3.0 Discounted Cash Flow Estimate

The discounted cash flow estimate is based on the assumption that the new peaking units will be operated in a competitive wholesale energy market. Implicit in this assumption is the idea that economic forces will exist which encourage the development of new generation to keep electrical energy supply and demand in balance. Therefore, the fair market value will be the level of capital investment in generating facilities which will yield after-tax cash flows that pay back the capital investment with an investment inducing return.

While the State of Kentucky has not yet adopted open retail access for its electric customers, generating companies in the State are currently exchanging output from their respective generators such that the wholesale market for generation is operating as a deregulated market. In this context, Black & Veatch developed a market model for the ECAR region which included the new E.W. Brown Station CT6 and CT7 generating units. Partial modeling of the surrounding regions (MAAC, MAIN, SERC and SPP) was also applied to account for the impact on ECAR of power transactions with surrounding markets.

The model assumed that power is transacted continually by means of a competitive bidding process in which individual generators bid prices to supply electricity each hour. The lowest price bids are selected and all successful bidders are paid the highest dispatched bid price each hour: the market clearing price. Using these assumptions, a consistent and transparent regional price is assumed to exist, differing only to the extent that transmission costs and constraints limit the sale of energy from lower priced geographic areas to higher priced areas.

The pricing applied in this analysis effectively assumes that the supply and demand for electricity in the competitive marketplace clears at prices consistent with the marginal cost of producing electricity. This marginal price is represented by two broad price components: a market-clearing energy component based solely on the variable costs of production, assuming new generators are added to meet growth; and a price component representing the additional revenue necessary to entice developers to install sufficient capacity to keep pace with demand growth and maintain adequate system reliability. The

market clearing energy price includes the effects of three variable cost components: fuel costs, non-fuel variable operation and maintenance (O&M) costs, and generating unit startup costs.

Although the capacity price component is applied within this estimate on a per-kilowatt basis, the actual pricing will be structured by the marketplace. However structured, the capacity price component covers the minimum additional payment needed to cover the marginal cost of capacity. The marginal cost of capacity is generally assumed to be based on the amortized cost of a simple cycle combustion turbine facility.

Based on the assumptions cited above, it can be assumed that the market will achieve economic efficiency in expansion to meet growth and in day-to-day operation. It should be noted that the more marginally efficient, but higher capital cost facilities may rely on the greater difference between their production cost and the market-clearing pricing to cover any premium in capital costs.

For this estimate, the ECAR market model was used to develop power market price projections and economic commitment and dispatch rankings for each generator in the region. Specifically, the model was used to develop projections of generating unit capacity factor, the variable market clearing prices at which the units would dispatch, and the regional capacity charge.

With regards to the discounted cash flow method of valuation, the current deregulation trends in the energy market have created a discontinuity between the wholesale and retail energy market financial requirements. The current wholesale market is functioning as a competitive market, while the retail market is still regulated. This discontinuity clouds the financial expectations under which the E.W. Brown Station will operate in the future. It is likely that the debt/equity ratios, rates of return, taxes, and revenues will vary from their current regulated environment basis as retail access is adopted in Kentucky. Under these conditions, the discounted cash flow valuation method assumed that operations, ie. revenues and expenses, and debt payment and taxes would be consistent with open market conditions. However, the capital structure would be consistent with the current regulated market.

Black & Veatch then developed a pro forma cash flow using the model output and miscellaneous technical and economic assumptions. The pro forma Summary Report is

provided in Attachment 1. The technical and economic assumptions are provided in Table 3-1 below. The pro forma, which included after-tax cash flow estimates, was used to back-calculate the capital cost of an electric generating station with a discount rate equivalent to the average rate earned by the holders of LG&E and KU preferred and common stock (11.86 percent). The estimated capital cost of an electric generating station with comparable technical performance, variable costs and return on investment as the E.W. Brown peaking units CT6 and CT7, using market projected revenues and a discounted cash flow valuation method, is \$133,900,000.

		Escalation (Percent)
Return on Equity, percent	11.86	
Operation Period, years	20	
Annual Capacity Factor, percent	3	
Capacity Charge, \$/kW-yr	52.00	3.0
Energy Charge, \$/kWh	0.059	3.0
Natural Gas Cost, \$/Mbtu	2.8	4.0
Variable Non-fuel O&M, \$1000	1,130	3.0
Fixed O&M, \$1000	150	3.0
Taxes & Insurance, \$1000	1,143	
Equity, percent	55	
Debt Interest, percent	6.9	
Construction Period, months	12	

4.0 Summary

The estimated cost of the facility using the replacement cost and discounted cash flow methods was \$124,000,000 and \$133,900,000, respectively. It can be shown that the two estimating methods will be equal (\$124,000,000) if a 13.7 percent rate of return is assumed, rather than the 11.86 percent assumed by Black & Veatch. This higher rate of return is more consistent with the financial expectations of non-regulated energy market investors. Therefore, the discounted cash flow estimate appears to be consistent with current market driven electrical power development project.

ENERGY GROUP SHORT FORM PRO FORMA SUMMARY REPORT

EW Brown Peaking (3.0 Cap-Capital Cost for IRR=Disc Rate)
2 X ABB GT24

MAJOR RESULTS:

	Minimum	Average	P.V. Average
Financing Coverage Ratios:			
Lease	NA	NA	NA
Total Long-Term Debt	0.000	3,730	3,545

Net Present Values (Jan-1999 @ 11.9%, \$1000):
After-Tax Cash Flow 77,745
Less: Future Value of Equity Investment 77,745

Net Return on Equity 0

Internal Rate of Return (Project) = 11.86%

Break-even Year (P.V.) = 2018

OPERATION PERIOD: Start = Jan-1999 Duration (yrs) = 20
Finish = Dec-2018

ELECTRIC GENERATION DATA:

Item	On-Peak	Off-Peak	Total
Hour fraction (%)	100.0%	0.0%	100.0%
Capacity factor (%)	3.0%	0.0%	3.0%
Operating hours	263	0	263
Base generating capacity (kW)	NA	NA	318000
Add. generating capacity (kW)	NA	NA	0
Base electric sales (GWh)	83.6	0.0	83.6
Add. electric sales (GWh)	0.0	0.0	0.0
Total electric sales (GWh)	83.6	0.0	83.6

STEAM DELIVERY / FUEL USAGE DATA:

Item	Type of Hours		Total
	Strm/Ele	Add Strm	
Delivery rate (lb/hr)	0	0	NA
Capacity factor (%)	3.0%	0.0%	3.0%
Operating hours	263	0	263
Steam sales (Mib)	0.0	0.0	0.0
Heat input rate (HHV, MBtu/hr)	4,155	0	NA
Heat input (GBtu)	1,092	0	1,092

Fuel specifications (Gas, Gas):

Heating value (HHV) = 1010 Btu/lcf
Weight density = 1.00 lb/lcf
Content (%) Sulfur = 0.0% Ash = 0.0%
Percent of metal recovered from solid fuel = 0.0%
Fuel burned = 1081 Mcf
Fuel received = 1081 Mcf

FGD CHEMICAL USAGE / SOLID WASTE PRODUCTION DATA

Required sulfur removal (%) = 0.0%
Treatment option = None
FGD chemical () data:
Usage ratio = 0.00
Purity (% Ca) = 0.0%
Usage (tons) = 0
Solid waste production (tons):
Ash = 0
SO2 solids = 0
Total = 0

ANNUAL INPUT DATA:

Electricity Sales Rates:	Units	1st Year	Total Esc
On-Peak Energy	\$/MWh	0.0590	4.0%
Off-Peak Energy	\$/MWh	0.0000	0.0%
Additional Energy	\$/MWh	0.0000	0.0%
Fixed O&M Payment	\$/MWh-yr	0.00	0.0%
Capacity Charge	\$/MWh-yr	52.00	3.0%
Capacity Rate (@ 3.0%)	\$/MWh	0.1979	3.0%
Calculated Total	\$/MWh	0.0000	3.0%
Miscellaneous Sales Rates:			
Steam Sales	\$/kib	0.000	0.0%
Tipping Fees	\$/ton	0.000	0.0%
Metal Recovery	\$/ton	3.500	4.0%
Ash Sales	\$/ton	0.000	0.0%
Other Revenues:			
Total	\$/MWh	0	0.0%
Fuel Price (Calc, Gas)	\$/Mcf	2.828	4.0%
Fuel Price (Input, Gas)	\$/Mbtu	2.800	4.0%

Non-Fuel O&M Expenses:
Variable:
FGD Chem. () Price
Solid Waste Disposal Cost
Annual Average Variable
Fixed:
Operating Labor
Maintenance
Annual Average Fixed

Other Operating Expenses:
Property Taxes
Insurance
Additional Capital Investments

TOTAL CAPITAL COST / DEPRECIABLE AMOUNT (\$1000):

Plant Construction Cost	Contingency	Land	Total Direct Cost	Indirect Construction Costs (ICC):	General (4% Direct)	Owner's (10% Direct)	Margin (5% Direct)	Total Indirect Construction Costs	Escalation (Addnl CC for IRR=11.86%)	Initial Contribution to Debt Reserve Fund	Initial Contribution to Working Capital Fund	Interest During Construction (Calculate)	Total Capital Cost	Allowable Depreciable Amount (100%) =
95,300	4,765	1,200	101,265	19,000	11,007	0	0	11,007	11,007	0	0	0	132,682	132,682

PERMANENT FINANCING BREAKDOWN:

Type	Percent	Amount \$1000
Lease	0.0%	0
Senior long-term debt	45.0%	60,247
Subordinate long-term debt	0.0%	0
Equity	55.0%	73,635
Total	100.0%	133,882

FINANCING OPTIONS:

Option	Lease	Senior Debt	Subord. Debt
Total (\$1000)	0	60,247	0
Term (years)	0	20	0
Interest rate	0.0%	6.5%	0.0%
Other fees	0.0%	0.0%	0.0%
First payment	Jan-0	Dec-2000	Dec-0
Last payment	Jan-0	Dec-2019	Dec-0
Payment type	NA	=P&I	=P&I
Payment (\$1000)	0	5,625	0
	(1 x 1/yr)	(1 x 1/yr)	(1 x 1/yr)

CASH FLOW PARAMETERS:

Treatment of tax losses option = Carryforward
Income tax rates (%):
Federal = 34.0%
State = 7.0%
Municipal = 1.0%
Effective = 39.2%
Interest / discount rates (%):
Annual before-tax interest rate = 6.9%
Net present value discount rate = 11.9%
Depreciation expense options:
Calculation method = SLN
Calculation convention = Mid-year
Asset life (years) = 20

Construction financing options:

Financing type = Same as permanent
Input/calculate IDC = Calculate
Construction annual interest rate (%) = 8.0%
Construction period duration (months) = 12

LOUISVILLE GAS AND ELECTRIC COMPANY
 KENTUCKY UTILITIES COMPANY
 CASE NO. 99-056

ACCOUNTING ENTRIES

The following entries were made to transfer the turbines from LG&E Capital Corp. to KU and LG&E for the amounts proportionate to their respective ownership percentages of 62% and 38% (in thousands of \$):

<u>Account</u>	<u>KU</u>		<u>LG&E</u>	
	<u>Dr</u>	<u>Cr</u>	<u>Dr</u>	<u>Cr</u>
Account 107 (Construction Work In Progress)	\$ 74,080		\$ 45,405	
Account 233 (Notes Payable To Assoc. Co.)		\$ 74,080		\$ 45,405

The following entries were made in July and August to record the earnings from and expenses of test energy during construction while owned by LG&E and KU (in thousands of \$):

Account 549 (Miscellaneous Other Power Gen. Exp.)	\$ 1,681		\$ 1,031	
Account 107 (Construction Work in Progress)		\$ 1,681		\$ 1,031
Account 107 (Construction Work In Progress)	\$ 463		\$ 284	
Account 549 (Miscellaneous Other Power Gen. Exp.)		\$ 463		\$ 284

KU recorded joint construction costs on its books in the following work orders:

Labor, Overhead and Other Expenses – CT Unit No. 6	\$209
Labor, Overhead and Other Expenses – CT Unit No. 7	276
Gas Pipeline Construction	<u>21</u>
Total	<u>\$506</u>
 KU 62% ownership amount	 \$314
LG&E 38% ownership amount	<u>192</u>
Total	<u>\$506</u>

Construction costs recorded on KU's books transferred to LG&E for the amount proportionate to LG&E's ownership percentage (in thousands of \$):

<u>Account</u>	<u>KU</u>		<u>LG&E</u>	
	<u>Dr</u>	<u>Cr</u>	<u>Dr</u>	<u>Cr</u>
Account 107 (Construction Work In Progress)	\$ 506			
Account 232 (Accounts Payable)		\$ 506		
Account 146 (Accounts Receivable from Assoc. Co.)	\$ 192			
Account 107 (Construction Work In Progress)		\$ 192		
Account 107 (Construction Work In Progress)			\$ 192	
Account 234 (Payable To Assoc. Co.)				\$ 192

In addition, KU recorded costs for a substation and other systems which relate to non-jointly owned assets at KU. The following entries were made to record these costs (in thousands of \$):

<u>Account</u>	<u>KU</u>	
	<u>Dr</u>	<u>Cr</u>
Account 107 (Construction Work In Progress)	\$ 3,735	
Account 232 (Accounts Payable)		\$ 938
Account 234 (Payable To Assoc. Co.)		\$ 2,797

Joint use assets were divided into major categories. Each category was allocated on either the area occupied (CT 6 & 7 square footage), summer net guaranteed output (CT output/Total plant output), or water consumption rates (CT consumption/Total consumption). These values were then allocated to LG&E on the percentage of ownership.

KU transferred to LG&E costs associated with joint use assets already included in KU's accounting records (in thousands of \$), which were determined as follows:

<u>Category</u>	<u>Basis</u>	<u>Cost on Books Allocated to Jointly Owned CT's</u>
Land and Land Rights	(a)	\$ 2
Rights of Way	(b)	80
Structures and Improvement	(a) and (b)	2,145
Fuel Holders, Producers, and Accessories	(b)	3,187
Prime Movers	(c)	452
Accessory Electrical Equipment	(b)	360
Misc. Power Plant Equipment	(a) and (b)	161
Total		6,387
		x38%
LG&E ownership amount		<u>\$2,427</u>

(a) Square footage (b) Summer net guaranteed output (c) Water consumption rate

The following entries were made to record the costs associated with joint use assets transferred to LG&E from KU (in thousands of \$):

<u>Account</u>	<u>KU</u>		<u>LG&E</u>	
	<u>Dr</u>	<u>Cr</u>	<u>Dr</u>	<u>Cr</u>
Account 146 (Receivable From Assoc. Co.)	\$ 2,427			
Account 101 (Electric Plant In Service)		\$ 2,427		
Account 107 (Construction Work In Progress)			\$ 2,427	
Account 234 (Payable To Assoc. Co.)				\$ 2,427



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

CERTIFICATE OF SERVICE

RE: Case No. 99-056
LOUISVILLE GAS AND ELECTRIC COMPANY

I, Stephanie Bell, Secretary of the Public Service Commission, hereby certify that the enclosed attested copy of the Commission's Order in the above case was served upon the following by U.S. Mail on July 23, 1999.

See attached parties of record.

Stephanie J. Bell

Secretary of the Commission

SB/sa
Enclosure

Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY. 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
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COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF LOUISVILLE GAS AND ELECTRIC)	
COMPANY AND KENTUCKY UTILITIES COMPANY)	CASE NO.
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)	99-056
AND NECESSITY FOR THE ACQUISITION OF TWO)	
164 MEGAWATT COMBUSTION TURBINES)	

O R D E R

Louisville Gas and Electric Company and Kentucky Utilities Company ("LG&E and KU") filed their application on February 11, 1999 for a Certificate of Public Convenience and Necessity for acquisition of two 164 Megawatt ("MW") combustion turbines. LG&E and KU subsequently amended their application to include a request for a Certificate of Environmental Compatibility pursuant to KRS 278.025. The total estimated cost is \$125 million. An unregulated affiliate of LG&E and KU, LG&E Capital Corp. ("Capital Corp."), purchased the two turbines from Asea Brown Boveri ("ABB") and began construction of the two units at KU's E.W. Brown generating station in Mercer County. LG&E and KU stated that the turbines are needed to reliably supply increasing customer loads, and the acquisition of the two turbines is the most reasonable least cost option compared to relying only on purchase power to serve the projected loads. The turbines will have dual fuel capabilities (oil and gas), but will be operated on gas. One turbine is expected to be in service by mid July and the second two to three weeks later. The Attorney General ("AG") and Kentucky Industrial Utility

Customers ("KIUC") were granted intervention, and a hearing was held at the Commission's offices on June 1, 1999.

The AG's position is that Capital Corp. paid a high price for the two turbines, and that LG&E and KU failed to explore all reasonable alternatives. The AG compared the price of the CT in the 1996 KU Integrated Resource Plan ("IRP") (\$198/KW) with the price of the CT under construction (\$381/KW) and recommended that LG&E and KU perform an analysis of other peaking alternatives such as battery storage and compressed air storage. KIUC did not submit testimony.

LG&E and KU issued a request for proposal ("RFP") on February 10, 1999 for firm peaking capacity. The RFP was sent to 107 potential suppliers, including IOUs, electric cooperatives, large municipal organizations, and marketing entities. Several responses were received by LG&E and KU, which requested and were granted confidentiality for all the proposals. The present value analysis shows that the CTs are the least cost option. On April 1, 1999, the utilities sent an RFP for CTs to the three major turbine manufacturers. Bids were received from the three manufacturers. The bid prices show that the CTs under construction are the least cost option. LG&E and KU requested confidentiality for all the bids. LG&E and KU stated at the hearing that the total construction cost of the two CTs will be \$118 million instead of the estimated cost of \$125 million.

LG&E and KU's analysis in the record supports the construction of the two CTs as the least cost option to meet future loads instead of relying on purchase power. The AG's suggestion that LG&E and KU paid a high price for the CTs is based on prices filed in KU's 1996 IRP. Since that IRP filing was made, the cost of CTs has increased

substantially due to industry demand following the capacity shortages experienced last summer. The recent turbine manufacturer bids demonstrate conclusively that the prices in KU's 1996 IRP are now unavailable. The AG filed no analysis to support his suggestion that other peaking options such as battery storage or compressed air storage would have a lower cost than the proposed CTs. The Commission finds that the acquisition of the two 164 MW turbines is the least cost option to reliably serve LG&E and KU's customer loads.

The Natural Resources and Environmental Protection Cabinet indicated that it had no objection to the issuance of a Certificate of Environmental Compatibility by the Commission.

Transfer of Turbines from LG&E Capital Corp.

LG&E Energy Corp.'s ("LG&E Energy") Corporate Policies and Guidelines for Intercompany Transactions ("Corporate Guidelines") state that transfers of assets from non-utility affiliates to LG&E or KU must be done at the lower of cost or fair market value. The transfer of the two combustion turbines from Capital Corp. to LG&E and KU is such a transaction. The Commission notes that the AG has challenged certain cost components and observes that the Corporate Guidelines provide no guidance as to how fair market value is to be determined.

Determining Cost. LG&E and KU indicated that construction costs for the two turbines have been recorded in accordance with the requirements of the Uniform System of Accounts ("USoA").¹ As part of the construction process, the turbines will be tested and electricity will be generated. Since Capital Corp. will be the owner of the

¹ Transcript of Evidence ("Tr."), at 63.

turbines during this testing period, the "test energy" will be sold in the wholesale market. In order to sell the test energy, Capital Corp. sought and received approvals from the Federal Energy Regulatory Commission ("FERC") for exempt wholesale generator ("EWG") status and permission to sell energy at market-based prices.² These authorizations were also needed if, during the period between the completion of construction and the transfer of the turbines, Capital Corp. desired to sell energy from the turbines. LG&E and KU estimated that the cost to obtain these approvals was between \$10,000 and \$20,000³ and indicated that the cost would be included in the capitalized construction costs.

The AG has objected to the inclusion of the costs associated with the FERC applications as part of the capitalized cost of the turbines. The AG contends that the need for the FERC approvals was the result of LG&E and KU manipulating the traditional certification process. The AG argues that had LG&E and KU followed the traditional approach in seeking a Certificate of Public Convenience and Necessity for the turbines, the FERC-related costs would not have been incurred. The AG states that ratepayers should not have to pay for these extra costs, and he recommends that all costs associated with the EWG status should be kept with Capital Corp. and should not be transferred to ratepayers.⁴

² EWG Application, FERC Docket No. EG99-103-000, Letter Ruling dated May 14, 1999 and Market-based Pricing Application, FERC Docket No. ER99-2108-000, Order dated April 28, 1999.

³ Tr. at 64-65. KU and LG&E revised this estimate to \$5,700; see Response to Information Requested at June 1, 1999 Public Hearing, filed June 4, 1999, Item 3.

⁴ Brown Kinloch Testimony, at 17-18.

The Commission rejects the AG's arguments. The USoA's Electric Plant Instructions concerning earnings and expenses during construction require that the revenues earned and expenses incurred for energy produced and sold during the construction period are components of the construction cost.⁵ Thus, the capitalized revenues from the sale of the test energy will offset the FERC application costs and expenses incurred to produce and sell test energy. Capital Corp. will not benefit at the expense of KU's and LG&E's ratepayers if the USoA capitalization rules are followed. Therefore, the Commission will require that LG&E and KU determine the cost of the two turbines following the requirements of the USoA.

Determining Fair Market Value. As noted previously, the Corporate Guidelines do not prescribe how fair market value is to be determined, and LG&E and KU have not indicated how it will be determined for the turbines. The Commission will require LG&E and KU to thoroughly explain how they determined the fair market value of the turbines to be transferred and whether the valuation includes an appraisal. If an appraisal is not included, LG&E and KU should explain why this was not done. Finally, in order to make a valid comparison with the cost, LG&E and KU should not include turbine components that are already owned by KU in the fair market valuation.

Therefore, the Commission finds that LG&E and KU should file their determination of the cost⁶ and the fair market value of the transferred turbines within 30 days after the date of the transfer. All accounting entries made to the books of LG&E

⁵ 18 CFR 101, Subchapter C, Electric Plant Instructions, Item 3 – Components of Construction Cost, paragraph 18.

⁶ The cost of the turbines should be shown with the same level of detail as was provided in the original application at pages 4 and 5.

and KU relating to the transfer of the turbines and the allocation between LG&E and KU of the turbines should also be filed with the Commission within 30 days of the transfer. Finally, LG&E and KU should provide explanations of how turbine components⁷ already recorded on the books of KU have been allocated to LG&E.

Governing Service Agreement

LG&E and KU initially informed the Commission of the situation with Capital Corp. and the turbines by a letter dated October 30, 1998. In that letter, LG&E and KU stated:

KU or LG&E involvement in the project will be limited to providing oversight during the construction and installation of the combustion turbines and will be performed pursuant to a service agreement that is consistent with LG&E Energy Corp.'s Corporate Policies and Guidelines for InterCompany Transactions. LG&E and KU Capital Corp. expect to enter into this agreement following the decision on the use of the machines.⁸

KU and Capital Corp. never executed the referenced service agreement.⁹ And while KU's role was initially envisioned to involve only project oversight, KU has actually incurred construction costs for facilities related to the turbines.¹⁰ LG&E and KU contend that while no formal service agreement was established between KU and Capital Corp.,

⁷ KU already owns the land on which the turbines are sited, and has accumulated certain construction costs on a series of work orders.

⁸ Response to the Commission's March 16 and 19, 1999 Orders, Item 5, page 3 of 4.

⁹ Tr. at 21-22.

¹⁰ Response to the Commission's March 16 and 19, 1999 Orders, Item 18(d). KU and LG&E stated at the public hearing that the current costs recorded by KU on work orders for the turbine project totaled \$921,804; see Tr. at 66.

all costs incurred by KU have been properly recorded to work orders coded for the turbine project and that these procedures comply with the Corporate Guidelines. LG&E and KU argue that a service agreement would have provided no additional safeguards beyond what has been accomplished by the accounting and record keeping procedures of KU and Capital Corp.¹¹

LG&E Energy's Corporate Guidelines consist of five double-spaced pages that describe the basic concepts to be followed in transactions between KU, LG&E and LG&E Energy affiliates. The Corporate Guidelines do not address the specific actions required by LG&E Energy affiliates to implement these basic concepts. The governance over a project such as this turbine construction requires a document more detailed than the Corporate Guidelines. While work order accounting and record keeping can adequately track and accumulate costs, they are not designed to address all the responsibilities, obligations, and rights of the parties involved in the project.

The Commission believes that had the turbine project involved an unaffiliated company, KU would have insisted upon, and executed, a service agreement or some other governing document that would have detailed the responsibilities, obligations, and rights of the parties. The fact that the party was an affiliate is not sufficient reason to deviate from sound business practices. The use of such a document would have also acknowledged and recorded KU's changed role in the construction of the turbines.

The Commission finds that KU and Capital Corp. should have executed a service agreement or some other governing document that would have detailed the responsibilities, obligations, and rights of each party. Such a step would not have been

¹¹ LG&E and KU Brief, at 9.

unreasonable, considering the nature and dollar value of the turbine project. In the future, should LG&E or KU enter into similar projects with other LG&E Energy affiliates, a service agreement or some other governing document should be executed. The document should be based on the Corporate Guidelines and detail the responsibilities, obligations, and rights of all parties to the document.

IT IS THEREFORE ORDERED that:

1. LG&E and KU are granted a Certificate of Public Convenience and Necessity and a Certificate of Environmental Compatibility for the acquisition of the two 164 MW CTs from Capital Corp.

2. The cost of the turbines to be transferred from Capital Corp. to LG&E and KU shall be determined in accordance with the capitalization rules of the USoA.

3. LG&E and KU shall explain in detail how the fair market value of the turbines to be transferred is determined. The determination of the fair market value shall not include any turbine component already included in KU's accounting records. If an independent, third-party appraisal is not utilized, LG&E and KU shall also explain why such an appraisal was not possible.

4. Within 30 days of the date of the transfer of the turbines, LG&E and KU shall file the determination of the cost and fair market value of the turbines.

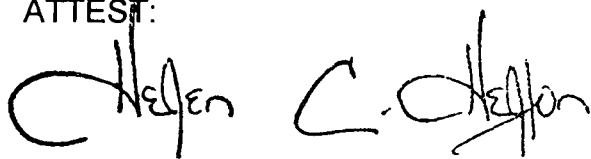
5. Within 30 days of the date of the transfer of the turbines, all accounting entries made to the books of LG&E and KU to record the transfer and allocation of the turbines shall be filed. In addition, LG&E and KU shall file an explanation of how turbine components already recorded on KU's books have been allocated to LG&E.

6. In the event LG&E or KU enters into a project with another LG&E Energy affiliate in the future, similar to the turbine project, LG&E or KU shall execute a service agreement or some other governing document that is based on the Corporate Guidelines and that outlines the responsibilities, obligations, and rights of the parties.

Done at Frankfort, Kentucky, this 23rd day of July, 1999.

By the Commission

ATTEST:

A handwritten signature in black ink, appearing to read "Stephen C. Coffey". The signature is written in a cursive style with a large initial 'S' and a distinct 'C'.

Executive Director



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
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FRANKFORT, KENTUCKY 40602
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June 16, 1999

Kendrick Riggs
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville KY, 40202

RE: Petition for Confidential Protection
Case No. 99-056

Dear Mr. Riggs,

The Commission has received the petition filed June 4, 1999, on behalf of Louisville Gas and Electric Company and Kentucky Utilities Company; to protect as confidential the following information submitted in response to data requests propounded by the Attorney-General and by the Commission:

Responses to requests for proposals to manufacturers of combustion turbines filed in response to Item 11 of the Attorney-Generals requests.

The present worth analysis of the responses to the requests for purchased power filed as a supplement to an earlier response to Item 9 of the Commission's data requests.

A review of the information has determined that it is entitled to the protection requested on the grounds relied upon in the petition and it shall be withheld from public inspection.

If the information becomes publicly available or no longer warrants confidential treatment, you are required by 807 KAR 5:001, Section 7(9)(a) to inform the Commission so that the information may be placed in the public record.

Sincerely,

A handwritten signature in black ink, appearing to read "Helen C. Helton".

Helen C. Helton
Executive Director

cc: All parties of record.



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
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July 15, 1999

Kendrick Riggs
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville KY, 40202

RE: Petition for Confidential Protection
Case No. 99-056

Dear Mr. Riggs,

The Commission has received the petition filed May 4, 1999, on behalf of Louisville Gas and Electric Company and Kentucky Utilities Company; to protect as confidential the following information submitted in response to the Commission's data requests:

Appendix B to the contract with Asea Brown Boveri containing specifications of equipment and work filed in response to Item 17.

Responses to requests for purchased power filed in response to Item 23.

The present worth analysis of the responses to the requests for purchased power filed in response to Item 9.

A review of the information has determined that it is entitled to the protection requested on the grounds relied upon in the petition and it shall be withheld from public inspection.

If the information becomes publicly available or no longer warrants confidential treatment, you are required by 807 KAR 5:001, Section 7(9)(a) to inform the Commission so that the information may be placed in the public record.

Sincerely,

A handwritten signature in black ink that reads "Helen C. Helton".

Helen C. Helton
Executive Director

cc: All parties of record.

mailed 7/16/99 *JA*



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June 16, 1999

Kendrick Riggs
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville KY, 40202

RE: Petition for Confidential Protection
Case No. 99-056

Dear Mr. Riggs,

The Commission has received the petition filed June 7, 1999, on behalf of Louisville Gas and Electric Company and Kentucky Utilities Company; to protect as confidential the number of hours that the call options in Table 4 of the companies' Resource Assessment were exercised. A review of the information has determined that it is entitled to the protection requested on the grounds relied upon in the petition and it shall be withheld from public inspection.

If the information becomes publicly available or no longer warrants confidential treatment, you are required by 807 KAR 5:001, Section 7(9)(a) to inform the Commission so that the information may be placed in the public record.

Sincerely,

A handwritten signature in cursive script that reads "Helen C. Helton".

Helen C. Helton
Executive Director

cc: All parties of record.

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1899-1984

ALSO ADMITTED:
*FLORIDA
**INDIANA
†VIRGINIA
††DISTRICT OF COLUMBIA
□OHIO

June 11, 1999

RECEIVED

JUN 11 1999

PUBLIC SERVICE
COMMISSION


Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
Frankfort, KY 40601

**Re: In the Matter of: Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines
PSC Case No. 99-056**

Dear Ms. Helton:

Enclosed for filing are the original and 11 copies of Louisville Gas and Electric Company's Brief in the above-referenced matter. Please file-stamp the extra copy of this pleading and return it to me in the enclosed, self-addressed, stamped envelope. ✓ *LA*

Sincerely,



Lauren Anderson

Enclosures

cc: Parties of Record

COMMONWEALTH OF KENTUCKY

RECEIVED

BEFORE THE PUBLIC SERVICE COMMISSION

JUN 11 1999

PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR THE ACQUISITION OF TWO)
164 MEGAWATT COMBUSTION TURBINES)

CASE NO. 99-056

BRIEF OF LOUISVILLE GAS AND ELECTRIC
COMPANY AND KENTUCKY UTILITIES COMPANY

The Applicants, Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU) (collectively the Companies) submit this brief to the Public Service Commission (the Commission) in support of their Application in the above-referenced case.

INTRODUCTION

In July of 1998, during a summer of national power shortages and unprecedented volatility in the wholesale power market, LG&E and KU determined that their plans to rely on purchased power to meet incremental margin needs in 1999 should be revisited. See Testimony of Ronald L. Willhite, page 6, and James W. Kasey, pages 4-5. The Companies therefore engaged Black & Veatch (B&V), an engineering and consulting firm, to assess the availability for purchase of combustion turbines (CTs) that could be placed in service by the summer of 1999. In late August 1998, LG&E and KU received a proposal for two CTs from Asea Brown Boveri (ABB). The Companies performed a limited, preliminary revenue requirements analysis in September 1998 that indicated that the CTs would likely be the least-cost alternative for meeting the combined energy needs of LG&E and KU. The Companies were also aware, from discussions with B&V and their own inquiries, that CTs were in high demand and short supply at that time. The two machines being offered by ABB

were, in fact, the only two available from any manufacturer for an in-service date of 1999. In order to avoid losing this acquisition opportunity for the Companies, LG&E Capital Corp. (LG&E Capital), an unregulated subsidiary of LG&E Energy Corp.,¹ signed an option agreement with ABB on October 2, 1998. The contract between LG&E Capital and ABB was signed on November 2, 1998.

Of course, LG&E Energy did not take the step of having LG&E Capital buy the CTs before considering whether the machines would be an economically viable purchase in the event that the Commission were to deny the required Certificates. The preliminary analysis performed in the fall of 1998 indicated that, while the machines would likely be the least-cost generation resource available to the Companies, the CTs would be a reasonable investment for LG&E Capital if the Certificate of Convenience and Necessity were denied. Once LG&E Capital had entered the option agreement with ABB, the Companies began a detailed and comprehensive revenue requirements analysis. The result is the Resource Assessment filed with the Application in this case as Exhibit LEB-2. The Resource Assessment demonstrates that the CTs are the least-cost way for the Companies to acquire additional generation resources to help meet their capacity needs for the summer of 1999 and beyond. Based on the analysis of the Resource Assessment, the Operating Committee for both Companies met on February 2, 1999 and approved the acquisition of the CTs by LG&E and KU. The Application was filed with the Commission on February 11, 1999. The CTs are presently being constructed by LG&E Capital and are anticipated to be in service in July of this year.

¹LG&E Energy Corp. is the parent corporation of LG&E, KU and LG&E Capital.

**I. ACQUISITION OF THE CTS IS THE LEAST-COST
WAY FOR THE COMPANIES TO ADD NEEDED CAPACITY.**

A. Need for Additional Capacity. KU and LG&E have experienced significant load growth in the past several years that reflects customer and economic growth in their service territories. Both Companies experienced record system peak demands on August 28, 1998 (2427 megawatts [MW] for LG&E, 3559 MW for KU). See Application, pages 2-3. The peak demand for the summer of 1999 is projected to be 6132 MW. This increased load will require more capacity than is currently available to meet the two Companies' customers' needs.

This fact is demonstrated throughout the Companies' Application, testimony and supporting exhibits. The testimony of H. Bruce Sauer, Manager of Forecasting and Marketing Analysis for both Companies, discusses the 1998 joint load forecast for LG&E and KU. The Forecast (Exhibit HBS-2 to the Application) projects steady growth in sales and output for the combined Companies over the next fifteen years. See Exhibits HBS-2 and HBS-1, 1999-2013 Joint Energy and Peak Demand Forecast for the combined Companies. The Resource Assessment, Exhibit LEB-2 to the Application, demonstrates what this growth means in terms of the Companies' capacity needs. According to the Resource Assessment, KU and LG&E have a joint need of approximately 470 megawatts of peaking capacity beginning in the summer of 1999 to maintain an adequate reserve margin during peak periods of consumption. See Exhibit LEB-2, page 2. This need will continue to grow. As illustrated in Exhibit LEB-1, if LG&E's and KU's generating capacity were to remain at present levels while growth in their service territories continues, the Companies will have a shortfall of approximately 679 megawatts in 2000, 813 megawatts in 2001, and so on.

Given these numbers, and the shortage of capacity in this part of the country,² it is indisputable that the Companies will need to add generating capacity some time in the near future simply to meet the demands of their native load. Both Companies have been aware of that fact for some time, as their Integrated Resource Plans (IRPs) demonstrate. See Exhibit LEB-2, pages 6-7 and Table 1, page 6 (Expansion Plans from Most Recent IRPs). However, until the summer of 1998, purchased power was both available and affordable, and the Companies planned to rely on such purchases to meet their peak needs. At the time of the merger of their parent corporations in May of 1998, the Companies anticipated that they could continue to rely on purchased power until 2001.

B. The Purchased Power Market. What happened in the summer of 1998 was not just that unexpectedly hot weather drove energy prices up temporarily. The weather exposed the serious shortage of power in certain parts of the country, including the East Central Area Reliability (ECAR) region which encompasses KU's and LG&E's service territories. See Resource Assessment, page 6; Kasey Testimony, page 5. As described by Mr. Kasey, in the Application and at the hearing, the market for purchased power still reflects the uncertainty over available capacity. See Kasey Testimony, pages 6, 8-9. This is supported by the responses to a request for purchased power (RFPP) that the Companies sent out on February 11, 1999. The RFPP responses showed higher energy prices for the summer of 1999 than were projected in the Resource Assessment. This confirms the Resource Assessment's conclusion that the CTs are the least-cost resource available. See Response to PSC-23 of the Commission's Order of March 19, 1999 (RFPP responses). Adding

²The Resource Assessment states, at page 6, that the combined reserve margin of KU and LG&E in the absence of additional capacity is projected to decline from 6% to -1% between 1999 and 2002. Projected reserve margins in the East Central Area Reliability Region—which includes Kentucky, Indiana, Michigan, Ohio, Pennsylvania, Virginia and West Virginia—are projected to decline from 11% to 5.5 % during the same period.

CTs this year, rather than in 2001 as previously planned, will make the Companies and their customers less vulnerable to the scarcities and price volatility of the wholesale power market.

C. Cost of the CTs. In testimony submitted by his Office of Rate Intervention, the Attorney General has suggested that LG&E Capital paid too much for the CTs. David H. Brown Kinloch, the Attorney General's witness, compares the cost of the present CTs with the price of installing CTs at the Brown facility projected in KU's most recent IRP. He concludes that the cost of the present CTs is 92% higher than that projected in the 1996 IRP. See Kinloch Testimony, page 7. However, this is a faulty comparison, for several reasons.

First, the total project cost of the latest 110 MW CT installed at Brown, in 1994, was \$251.50 per kilowatt (KW), rather than \$198/KW as stated in the IRP.³ The \$251.50 figure reflects all costs associated with the 1994 CT, including balance of plant, project contingencies, and KU start-up and indirect costs. Second, as Mr. Kinloch admits in his testimony (page 7), the CTs currently under consideration are larger and more efficient (at 164 MW) than the ones referred to in the IRP (110 MW) or presently in service at Brown. Third, Mr. Kinloch did not take into account the 3.7% adjustment for inflation from 1995 dollars (used in the 1996 IRP) to 1998. Finally, the current project is actually under budget: Instead of the \$125 million stated in the Application, the total cost of the project is now projected to be \$118 million.⁴ With an output of 328 MW, this means that the total

³See Brief for Kentucky Utilities Company in case 93-474, "Application of Kentucky Utilities Company for a Certificate of Convenience and Necessity to Construct a 110 Megawatt Combustion Turbine Generating Unit and Associated Facilities Scheduled for Completion in 1996 to be Located at the Company's E. W. Brown Generating Station in Mercer County, Kentucky," at page 4 (filed on April 29, 1994).

⁴The \$118 million figure was reported by Lonnie E. Bellar, Manager of Generation Systems Planning for LG&E and KU, during his testimony at the June 1, 1999 public hearing.

cost of the current CTs is \$360/KW. After adjusting for inflation and the greater efficiency of the new units, this is 22% higher than the cost of the 110 MW machine added in 1994, which is obviously a far cry from the 92% premium alleged by Mr. Kinloch. Thus, while the price of the new machines reflects the seller's market for CTs (see discussion in Section II.A below), the new units are still the least-cost way for the Companies to add needed capacity, as demonstrated in the Resource Assessment.

II. ACQUISITION OF THE CTS FROM LG&E CAPITAL IS REASONABLE IN A SELLER'S MARKET.

The Attorney General has questioned the procedure by which the Companies are seeking to acquire the CTs in this case. Specifically, the Attorney General has questioned the use of an unregulated affiliate, LG&E Capital, to purchase and build the CTs while allowing KU and LG&E to apply for the regulatory approvals in this case. See Kinloch Testimony, pages 6, 17-18. The Attorney General would ask the Companies to accept the risk of relying on the volatile wholesale power market, with the attendant risk to their customers of interrupted service. However, there were sound reasons for proceeding as the Companies did in this case.

A. **The CT Market.** As mentioned previously, CTs are in short supply at present. Mr. Kinloch acknowledges in his testimony that "LG&E Capital purchased the only units available from the only supplier that had units available for sale," and further that the Companies have "correctly characterized [the CT market] as a seller's market." See Kinloch Testimony, page 9.

CTs are in high demand because there is a shortage of available power in this part of the country. The May 1999 Report of ECAR's Generation Resources Panel estimates that there is a 47% probability that its members will need to rely on supplemental capacity resources in the summer of

1999. This 47% probability is the second highest ever projected by ECAR, the highest being a 50% probability going in to the summer of 1995. The Report concludes that abnormally hot and humid weather in 1999 or unexpected generator outages, combined with the difficulty of importing power from outside the region, could make it necessary for member utilities to curtail additional load, beyond contractually interruptible loads and demand side management.

Given the projected shortage of power and the threat of having to interrupt service, many utilities are scrambling for ways to meet their capacity needs; thus the current seller's market for CTs. As Mr. Kinloch acknowledged in his cross-examination at the public hearing, a seller's market means that the seller is in the more powerful position and can make certain demands of prospective buyers. This is especially true where, as here, there are only three manufacturers of the needed product.⁵ These conditions precluded the Companies from negotiating an extended option period or a "regulatory out" from the purchase of the CTs. The vendor, ABB, would simply have gone to another buyer, and said so.

The current seller's market for CTs represents a 180-degree turnaround from the buyer-friendly market conditions that both the Companies and the Commission experienced in the past. In 1994, when KU purchased the most recent CT for the Brown facility, it was the vendors who were in competition with one another. ABB, KU's initial choice, held its price firm for five months while KU explored other alternatives. A competing CT manufacturer went so far as to sneak a last-minute bid to KU (it was received the day before the public hearing) in the hopes of capturing the sale away from ABB. See April 26, 1994 letter to the Commission and April 25, 1994 memorandum regarding

⁵ABB, Siemens/Westinghouse, and General Electric.

the last-minute offer, attached hereto as Exhibit 1.⁶

The difference between 1994 and 1998 is illustrated dramatically by the fact that ABB's initial bid for the current CTs was open for only one week (as opposed to five months in 1993-4), which did not allow the Companies time to assess the proposal. The next bid received from ABB included a higher price for the same two CTs. See testimony of Lonnie E. Bellar at pages 4-5. The state of the CT market is further illustrated by the responses that the Companies received to a recent request for proposals for CTs. One respondent, Siemens/Westinghouse, increased its price by \$1 million per machine between April 15, 1999 and April 27, 1999, "[b]ecause of market events." See Response to Information Requested at the June 1, 1999 Public Hearing, filed with the Commission on June 4, 1999.

In short, the Companies were aware in September of 1998 that a failure to act promptly on the only two CTs available would result in a loss of those units. However, they were also aware that they could not simply buy the units without first obtaining a Certificate of Public Convenience and Necessity from the Commission, pursuant to KRS 278.020. The Companies did not want to place themselves in the position of East Kentucky Power Cooperative in 1992, when that company committed to purchase new units without prior approval from the Commission.⁷ In order to secure the CTs while ensuring compliance with the process outlined in KRS 278.020 and 807 KAR 5:001, the Companies' parent corporation, LG&E Energy, arranged for LG&E Capital to purchase the CTs, while the Companies prepared the Resource Assessment and their Application. The Attorney General's criticism, therefore, is neither fair nor warranted. The Companies acted responsibly under

⁶Both of these documents are on file with the Commission in Case No. 93-474.

⁷PSC Case No. 92-112.

the circumstances and consistent with KRS 278.020.

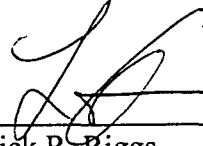
B. Compliance with the Corporate Guidelines. The CTs are presently under construction at KU's E.W. Brown Generating Station in Mercer County, Kentucky. The construction contractor is Overland Contracting, Inc., a subsidiary of B&V. KU employees have contributed their services and expertise to the project. The value of these employees' services is reflected by the fact that the CTs are expected to be completed for \$7 million less than originally projected.

Both the Commission and the Attorney General have questioned whether there is or should be a service agreement between LG&E Capital and KU for services KU employees have performed during the construction phase. While there is no formal service agreement between LG&E Capital and KU, all work performed by KU employees has been recorded to work orders coded for this particular project. See Response PSC-18 to the Commission's Order of March 19, 1999. These procedures comply with the Corporate Guidelines for InterCompany Transactions, approved by the Commission in Case No. 97-300. A service agreement would provide no additional safeguards beyond the careful accounting, reporting and recordkeeping procedures that KU and LG&E Capital have been following in accordance with the Guidelines.

CONCLUSION

For the foregoing reasons, Louisville Gas and Electric Company and Kentucky Utilities Company respectfully request that the Public Service Commission issue a Certificate of Public Convenience and Necessity and a Certificate of Environmental Compatibility for the acquisition of two 164 MW combustion turbines. The Applicants further request that the Commission act on this Application by June 30, 1999, in order that the CTs can be in service in time to meet the Companies' summer load requirements.

**LOUISVILLE GAS AND
ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY**



Kendrick R. Riggs
Lauren Anderson
Ogden Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
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John R. McCall
Executive Vice President
General Counsel
Michael S. Beer
Senior Corporate Attorney
Louisville Gas and Electric Company
220 West Main Street
Louisville, Kentucky 40232

158408

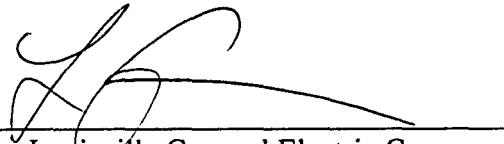
CERTIFICATE OF SERVICE

I certify that the foregoing **BRIEF OF LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY** was served by mail on the following persons this

11th day of June, 1999:

Elizabeth E. Blackford
Assistant Attorney General
Office of Rate Intervention
1024 Capital Center Drive
Frankfort, Kentucky 40601

Michael L. Kurtz
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, Ohio 45202



Counsel for Louisville Gas and Electric Company
and Kentucky Utilities Company

KENTUCKY UTILITIES COMPANY
ONE QUALITY STREET
LEXINGTON, KENTUCKY 40507

ROBERT M. HEWETT
Vice President
(606) 288-1107

General Office (606) 255-2100
Telecopier (606) 288-1125

April 26, 1994

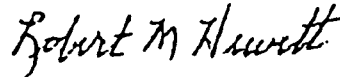
Mr. Donald R. Mills,
Executive Director
Public Service Commission
730 Schenkel Lane
Frankfort, Kentucky 40602

RE: Case No. 93-474
Kentucky Utilities Company

Dear Mr. Mills:

Kentucky Utilities Company recently received an additional offer for the sale of a combustion turbine from a vendor. Kentucky Utilities Company has determined to reject this offer for the reasons provided by Mr. Tipton's memorandum of April 25, 1994, a copy of which is enclosed for the Commission's information.

Sincerely,



Robert M. Hewett,
Vice President
Regulation and Economic Planning

RMH:jm

Enclosure

cc: Hon. Paul E. Reilender, Jr.
Assistant Attorney General
P. O. Box 2000
Frankfort, Kentucky 40602-2000

Hon. Kendrick R. Riggs
Ogden, Newell & Welch
1200 One Riverfront Plaza
Louisville, Kentucky 40202

its assessment and would not consider further discussions. Additionally,

KENTUCKY UTILITIES COMPANY

FOR COMPANY BUSINESS ONLY

PSC Case No. 93-474

Subject Application for CertificateDate April 25, 1994From J. W. TiptonTo R. M. Hewett

The purpose of this memorandum is to advise you of our receipt of a new offer from Westinghouse for the sale of a combustion turbine and our review and consideration of and decision on this offer.

After the close of business on April 15, 1994, KU apparently received, by facsimile delivery, a new offer by Westinghouse for the sale of the Westinghouse 501DA Combustion Turbine at a firm price of \$18,600,000. We learned of this offer the following Monday morning, April 18. The receipt of this offer just before the CT hearing scheduled for the following day did not allow us sufficient time to review, consider and make a decision on this offer. The circumstances surrounding the delivery and timing of this offer and the appearance of a Westinghouse representative at the Commission after the hearing on April 19 asking to have further discussion suggests the possibility that Westinghouse may have considered the consequence of these actions when it made the offer.

Kentucky Utilities Company has reviewed and analyzed this offer and determined to reject it because it is not the best, lowest cost offer, nor is it timely. Further consideration of this offer would cause KU to reopen the resource assessment process, thereby further unduly compressing the current construction schedule and increasing the expected costs to complete the combustion turbine. In addition, the offer by Westinghouse is incomplete because it does not contain the necessary information to fully evaluate this particular machine. Finally, notwithstanding any of these reasons, the April 15 offer does not change the economic order between the Westinghouse offer and the other combustion turbine offers.

Kentucky Utilities first contacted Westinghouse by telephone on January 17 and advised Westinghouse and the other CT vendors of KU's interest of receiving offers. Westinghouse submitted an offer dated March 4 for \$19,802,000 for the CT and then on March 15 submitted an offer on a turn-key basis. KU advised Westinghouse that it had rejected the March 15 offer because it was not interested in such a proposal and additionally that offer was determined to be not cost effective, but would consider the March 4 offer unless Westinghouse would submit an additional offer by March 31. On April 8, KU advised Westinghouse and on April 11 advised Siemens (who could not be reached on April 8) of KU's decision to proceed with the ABB offer subject to the Commission's decision in the certificate of convenience and necessity proceeding. KU informed all the vendors that it had completed its assessment and would not consider further discussions. Additionally,

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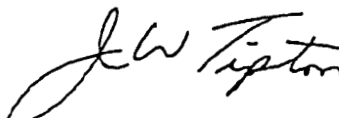
KU informed all the vendors that it would be filing a report with the Commission during the next week.

In addition, considering this offer or any subsequent offer for purposes of our resource assessment process at this time would cause KU to reopen the entire resource assessment process. In KU's opinion, this process was completed when the alternative proposal evaluations were complete and when, on April 13, 1994, KU filed the Report with the Commission. Reopening the resource assessment process at this time could cause KU to lose the offer submitted by ABB because the re-initiated evaluation process would take at least 60 to 90 days to complete. The ABB offer will expire on May 20, 1994. This delay would also cause the construction schedule to slip from May 20 to at least August 20 and cause compression in the construction schedule resulting in increased construction costs.

Notwithstanding these concerns, we have asked Black and Veatch to review this offer and provide an evaluation. This has been done and is contained in the Black and Veatch letter of April 25, 1994 attached. This information and the attached screening analysis prepared by KU's System Planning Section continues to show the Westinghouse offer as more expensive than the ABB offer for the reasons presented by Black and Veatch and in our own analysis.

While I do not consider the Westinghouse April 15, 1994 offer to be valid or reasonable, the Commission should be advised of our receipt of this offer in the interest of full disclosure.

jm



Attachments: Westinghouse letter (3-15-94)
Westinghouse letter (4-15-94)
Black & Veatch letter (4-25-94)
KU screening analysis (4-25-94)

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ENOCH M. POON
SQUIRE R. OGDEN
1899-1984

ALSO ADMITTED:
*FLORIDA
**INDIANA
†VIRGINIA
††DISTRICT OF COLUMBIA
□OHIO

June 7, 1999 RECEIVED

JUN 07 1999

PUBLIC SERVICE
COMMISSION

Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
Frankfort, KY 40601

**Re: In the Matter of: Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines
PSC Case No. 99-056**

Dear Ms. Helton:

Louisville Gas and Electric Company and Kentucky Utilities Company (collectively the Companies) are submitting information relating to the Table 4 of the Companies' Resource Assessment (Exhibit LEB-2 to the Companies' Application in this case) requested at the June 1, 1999 public hearing before the Public Service Commission. Enclosed with this information is a Petition for Confidential Protection.

Please accept this Response to Information Requested at the June 1, 1999 Public Hearing and Petition for Confidential Protection for filing in the record of Case No. 99-056. Thank you for your cooperation.

Sincerely,



Lauren Anderson

cc: Parties of Record
Michael Beer
Ronald L. Willhite

RECEIVED

COMMONWEALTH OF KENTUCKY JUN 07 1999

BEFORE THE PUBLIC SERVICE COMMISSION
PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. 99-056
AND NECESSITY FOR THE RESOURCE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

PETITION OF
LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
FOR CONFIDENTIAL PROTECTION

Pursuant to 807 KAR 5:001 Section 7, Louisville Gas and Electric Company and Kentucky Utilities Company (collectively the "Companies") petition the Public Service Commission (the "Commission") to grant confidential protection to information that the Companies are providing in response to a request for information made at the June 1, 1999 public hearing. In support of this Petition, the Companies state as follows:

1. The information being submitted relates to Table 4, page 15 of the Companies' Resource Assessment. The Resource Assessment was filed as Exhibit LEB-2 to the Companies' application in this case. In response to a request made by the Commission at the June 1, 1999 public hearing, the Companies are providing the number of hours that the call options in Table 4 were exercised.

2. Public disclosure of this information would allow power marketers with whom the Companies do business to know in advance the hours for which the Companies are expected

to need additional capacity. This would allow vendors of wholesale power to charge the Companies higher prices for power during those hours.

3. Under KRS 61.878(1)(c), records confidentially disclosed to an agency which are generally recognized as confidential or proprietary in nature are exempt from public inspection. The information described above constitutes confidential proprietary information, the disclosure of which would provide an unfair commercial advantage to the Companies' competitors.

4. The Companies do not object to disclosure of the confidential information, pursuant to a protective agreement, to the Attorney General or other intervenors with a legitimate interest in reviewing the confidential information.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company respectfully request that the Commission grant confidential protection to the information designated as confidential for a period of five years from the date of the filing of this application, or in the alternative, schedule an evidentiary hearing on all factual issues.

Respectfully submitted,



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202
502/582-1601

John R. McCall
Executive Vice President
General Counsel
Corporate Secretary

Douglas M. Brooks
Senior Counsel Specialist,
Regulatory

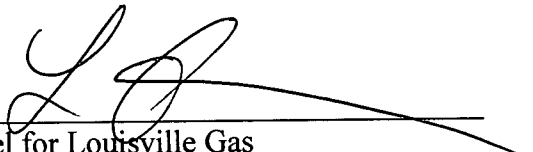
Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 7th day of June, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202


Counsel for Louisville Gas
and Electric Company and
Kentucky Utilities Company

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JUN 04 1999

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June 4, 1999

**PUBLIC SERVICE
COMMISSION**
MOLLY HYLAND WOLFRAM
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Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
Frankfort, KY 40601

**Re: In the Matter of: Application of Louisville Gas and Electric Company and
Kentucky Utilities Company for a Certificate of Public Convenience and Necessity
for the Acquisition of Two 164 Megawatt Combustion Turbines
PSC Case No. 99-056**

Dear Ms. Helton:

Louisville Gas and Electric Company and Kentucky Utilities Company (collectively the Companies) are submitting the following information requested at the public hearing held on June 1, 1999 before the Public Service Commission (the Commission):

1. Responses to Request for Proposals (RFP) for combustion turbines (CTs). The Companies are also submitting an analysis of the RFP responses performed by Black & Veatch, an engineering and consulting firm. This information is being submitted as a Supplemental Response to Question 11 of the Attorney General's Request for Information, which asked for a list of CTs currently available for purchase.
2. A clarification of the Net Present Value Analysis that was submitted in response to the Commission's April 9, 1999 Order. This is being submitted as a Supplemental Response to PSC-S9.
3. Letter dated May 14, 1999 from Douglas W. Smith, General Counsel of the Federal Energy Regulatory Commission (FERC), approving LG&E Capital Corp.'s exempt

Helen C. Helton
June 4, 1999
Page Two

wholesale generator (EWG) status. Attached to the letter is a copy of the public notice of LG&E Capital Corp.'s application for EWG status.


4. Letter dated April 28, 1999 from Linwood A. Watson Jr., Acting Secretary of FERC, authorizing LG&E Capital Corp. to engage in wholesale electric power and energy transactions at market-based rates. Attached to the letter is a copy of the public notice of LG&E Capital Corp.'s petition.

Information relating to the Table 4 of the Companies' Resource Assessment (Exhibit LEB-2 to the Companies' Application in this case) will be filed with a Petition for Confidential Protection on Monday, June 7, 1999.

The Companies are also submitting at this time a Petition for Confidential Protection for the information described in paragraphs 1 (responses to the CT RFP) and 2 (information relating to the Net Present Value Analysis) above.

Please accept these Responses to Information Requested at the June 1, 1999 Public Hearing and Petition for Confidential Protection for filing in the record of Case No. 99-056. Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to be 'LA', with a long horizontal line extending to the right.

Lauren Anderson

cc: Parties of Record
Michael Beer
Ronald L. Willhite

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED
JUN 04 1999
PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. 99-056
AND NECESSITY FOR THE RESOURCE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

PETITION OF
LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
FOR CONFIDENTIAL PROTECTION

Pursuant to 807 KAR 5:001 Section 7, Louisville Gas and Electric Company and Kentucky Utilities Company (collectively the "Companies") petition the Public Service Commission (the "Commission") to grant confidential protection to information that the Companies are providing as Supplemental Responses to the Order issued by the Public Service Commission on April 9, 1999 and the Attorney General's Request for Information. In support of this Petition, the Companies state as follows:

1. Request No. 11 of the Attorney General's Request for Information (AG-11) asks for a list of combustion turbines (CTs) available for purchase today. The Companies are submitting copies of responses received to a request for proposals (RFP) issued on April 1, 1999 to the three manufacturers of combustion turbines. Each vendor that answered the Companies' RFP designated its response as confidential. The Companies have protected the confidentiality of the proposals as requested by the respondents, and only those employees with a need for this information have had access to it. The RFP responses contain information that is proprietary to

each CT vendor. Disclosure of this information would allow each company's competitors to learn that company's trade secrets.

2. The respondents are the only three manufacturers of combustion turbines in business today. Public disclosure of the RFP responses would compromise the Companies' ability to obtain responses to future RFPs, or even to purchase CTs in the future, due to disclosure concerns. In addition, as the RFP responses demonstrate, combustion turbines are in short supply for the next several years, and other entities with whom the Companies may be competing for the machines in the future could use the information in the RFP responses to their commercial advantage.

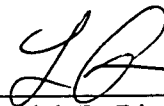
3. Request No. 9 of the Commission's Order of April 9, 1999 (PSC-S9) requested a present worth analysis of the responses to a request for purchased power (RFPP) that the Companies issued on February 11, 1999. The Supplemental Response to PSC-S9 provides calculations related to the Net Present Value Analysis of those responses. The Companies requested confidential protection for the Net Present Value Analysis by Petition dated May 14, 1999, which Petition is incorporated by reference herein.

4. Under KRS 61.878(1)(c), records confidentially disclosed to an agency which are generally recognized as confidential or proprietary in nature are exempt from public inspection. The information described above constitutes confidential proprietary information, the disclosure of which would jeopardize the Companies' future transactions with combustion turbine vendors and wholesale power marketers and provide an unfair commercial advantage to the Companies' competitors.

5. The Companies do not object to disclosure of the confidential information, pursuant to a protective agreement, to the Attorney General or other intervenors with a legitimate interest in reviewing the confidential information.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company respectfully request that the Commission grant confidential protection to the information designated as confidential for a period of five years from the date of the filing of this application, or in the alternative, schedule an evidentiary hearing on all factual issues.

Respectfully submitted,



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1700 Citizens Plaza
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502/582-1601

John R. McCall
Executive Vice President
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Senior Counsel Specialist,
Regulatory

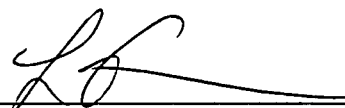
Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 4th day of June, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
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2110 CBLD Center
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Cincinnati, OH 45202



Counsel for Louisville Gas
and Electric Company and
Kentucky Utilities Company

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY
CASE NO. 99-056

RECEIVED

JUN 04 1999

Response to Information Requested at June 1, 1999 Public Hearing

PUBLIC SERVICE
COMMISSION

Responding Witness: Lonnie Bellar

Supplemental Response to Attorney General's April 1, 1999 Data Request AG-11

The information in response to this question is subject to a request for confidential protection under 807 KAR 5:001, Section 7. The original filed with the Commission contains the requested information. This information is omitted in all other copies submitted herewith.

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY
CASE NO. 99-056

Response to Information Requested at June 1, 1999 Public Hearing

Responding Witness: Lonnie Bellar

Supplemental Response to Commission's April 9, 1999 Data Request PSC-S9, Part C

The information in response to this question is subject to a request for confidential protection under 807 KAR 5:001, Section 7. The original filed with the Commission contains the requested information. This information is omitted in all other copies submitted herewith.

LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY
CASE NO. 99-056

Response to Information Requested at June 1, 1999 Public Hearing

Responding Witness: Ronald L. Willhite

The requested LG&E Capital Corporation exempt wholesale generator FERC Order, Docket No. EG99-103-000, dated May 14, 1999 is attached as Attachment A.

The requested LG&E Capital Corporation market-based rate tariff FERC Order, Docket No. ER99-2108-000, dated April 28, 1999 is attached as Attachment B.

The fees for obtaining the market-based rate authority and exempt wholesale generator status have not been invoiced at this time, however, the estimated amount of the charges is \$5,700.

LG&E CAPITAL CORPORATION
EXEMPT WHOLESALE GENERATOR
FERC DOCKET NO. EG99-103-000
FERC ORDER DATED MAY 14, 1999

87 FERC 762,188

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20428

749721

OFFICE OF THE GENERAL COUNSEL

MAY 14 1999

Mr. Earle H. O'Donnell
Dewey Ballantine L.L.P.
1775 Pennsylvania Ave., N.W.
Washington, D.C. 20006-4605

Re: Docket No. EG99-103-000

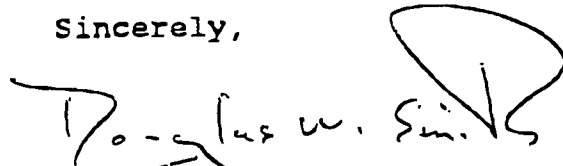
Dear Mr. O'Donnell:

On March 25, 1999, you filed an application for determination of exempt wholesale generator status on behalf of LG&E Capital Corporation pursuant to section 32 of the Public Utility Holding Company Act of 1935 (PUHCA). Notice of the application was published in the Federal Register, 64 Fed. Reg. 17,356 (1999), with interventions or comments due on or before April 21, 1999. None was filed.

Authority to act on this matter is delegated to the General Counsel. 18 C.F.R. 375.309(g). Based on the information set forth in the application, I find that LG&E Capital Corporation is an exempt wholesale generator as defined in section 32 of PUHCA.

A copy of this letter will be sent to the Securities and Exchange Commission.

Sincerely,



Douglas W. Smith
General Counsel

739309

FILED
OFFICE OF THE SECRETARY
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION
99 MAR 15 PM 4:10

LG&E Capital Corporation) Docket No. ER99-2108-000
FEDERAL ENERGY
REGULATORY COMMISSION

NOTICE OF FILING

(March 15, 1999)

Take notice that on March 10, 1999, LG&E Capital Corporation (Capital Corp.) submitted for filing, pursuant to Section 205 of the Federal Power Act, and Part 35 of the Commission's regulations, a Petition for Blanket Authorization to Make Sales of Capacity and Energy at Market-Based Rates. Capital Corp. plans to own and operate two 164 megawatt combustion turbine electric generating units. These units will be the fifth and sixth units at Kentucky Utilities Company's existing E.W. Brown Generating Station in Mercer County, Kentucky.

Any person desiring to be heard or to protest such filing should file a motion to intervene or protest with the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 385.214). All such motions and protests should be filed on or before March 30, 1999. Protests will be considered by the Commission to determine the appropriate action to be taken, but will not serve to make protestants parties to the proceedings. Any person wishing to become a party must file a motion to intervene. Copies of this filing are on file with the Commission and are available for public inspection. This filing may also be viewed on the Internet at <http://www.ferc.fed.us/online/rims.htm> (call 202-208-2222 for assistance).

David P. Boergers
Secretary

701465

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

LG&E Capital Corporation)

Docket No. EG99-103-000

NOTICE OF APPLICATION FOR COMMISSION DETERMINATION
FOR EXEMPT WHOLESALE GENERATOR STATUS

(March 31, 1999)

On March 25, 1999, LG&E Capital Corporation (Capital Corp.), a Kentucky corporation with its principal place of business at 220 West Main Street, Louisville, Kentucky 40202, filed with the Federal Energy Regulatory Commission an application for determination of exempt wholesale generator status pursuant to Part 365 of the Commission's regulations.

Capital Corp. proposes to construct, own and operate two 164 megawatt combustion turbine electric generating units in Mercer County, Kentucky. The units are scheduled to be completed in July 1999 and to be in service by August 1, 1999. All capacity and energy from the plant will be sold exclusively at wholesale.

Any person desiring to be heard concerning the application for exempt wholesale generator status should file a motion to intervene or comments with the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 385.214). The Commission will limit its consideration of comments to those that concern the adequacy or accuracy of the application. All such motions and comments should be filed on or before April 21, 1999, and must be served on the applicant. Any person wishing to become a party must file a motion to intervene. Copies of this filing are on file with the Commission and are available for public inspection or on the Internet at <http://www.ferc.fed.us/online/rims.htm> (please call (202)208-2222 for assistance).

Linwood A. Watson, Jr.
Acting Secretary

LG&E CAPITAL CORPORATION
MARKET-BASED RATE TARIFF
FERC DOCKET NO. ER99-2108-000
FERC ORDER DATED APRIL 28, 1999

87 FERC ¶ 61,108

746109

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

April 28, 1999

Docket Nos. ER99-1983-000
ER99-1993-000
ER99-2043-000
ER99-2044-000
ER99-2045-000
ER99-2108-000
ER99-2156-000

Davis Wright Tremaine
ATTN: Steven F. Greenwald
Attorney for Geysers Power Company, LLC
One Embarcadero Center, Suite 600
San Francisco, CA 94111-3834

Troutman Sanders LLP
ATTN: William B. Conway, Jr.
Attorney for Southern Energy Lovett, L.L.C.,
Southern Energy Bowline, L.L.C. and
Southern Energy NY-Gen, L.L.C.
1300 Eye Street, N.W.
Suite 500 East
Washington, D.C. 20005-3314

Dewey Ballantine LLP
ATTN: Laurel W. Glassman
Attorney for LG&E Capital Corporation
1775 Pennsylvania Avenue, N.W.
Washington, D.C. 20006-4605

Steptoe & Johnson LLP
ATTN: Steven J. Ross
Attorney for Cordova Energy Company LLC
1330 Connecticut Avenue, N.W.
Washington, D.C. 20036-1795

Dear Sirs and Madams:

You submitted for filing with the Commission rate schedules under which the applicants will engage in wholesale electric power and energy transactions at market-based rates. Your submittals, as modified below, comply with the Commission's requirements for market-based rates and are accepted for filing. They are designated and made effective as indicated in Appendix A to this order.

In addition, Geysers Power Company, LLC (Geysers) filed, in Docket No. ER99-1993-000, amended rate schedules changing the seller under must-run agreements associated with Geysers'

-746110

Docket No. ER99-1983-000 et al.

- 2 -

geothermal generating units from Pacific Gas and Electric Company to Geysers. 1/ These rate schedules are accepted for filing.

Any waivers or authorizations requested by your applications are granted to the extent specified in Appendix B to this order. Waiver of the prior or advance notice requirements, if requested, is granted to the extent specified in Appendix A. The applicants must comply with the reporting and other requirements specified in Appendix B to this order.

The codes of conduct submitted by the applicants are accepted if consistent with Appendix C, which reflects requirements adopted in previous Commission orders. Any code of conduct inconsistent with Appendix C is rejected and in such case Appendix C has been designated as the applicant's code of conduct. The codes of conduct submitted by the applicants covered by this order are consistent with Appendix C.

Under Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (1998), an entity's filing of a timely notice of intervention or timely, unopposed motion to intervene in a proceeding makes it a party to that proceeding.

Should an applicant or any of its affiliates deny, delay, or require unreasonable terms, conditions, or rates for natural gas fuel or services to a potential electric competitor in bulk power markets, then that electric competitor may file a complaint with the Commission that could result in an applicant's or its affiliates' authority to sell power at market-based rates being suspended. 2/

Sales of accounts receivable are not dispositions of jurisdictional facilities and are not within the scope of section 203 of the FPA. To the extent an applicant seeks a case-specific finding on this or any related point, it may file a petition for a declaratory order with the Commission.

Southern Energy Lovett, L.L.C., Southern Energy Bowline, L.L.C. and Southern Energy NY-Gen, L.L.C. (collectively the Southern Energy companies) have filed rate schedules that fail to

1/ The proceeding under section 203 of the FPA to transfer the jurisdictional facilities associated with the units from Pacific Gas and Electric Company to Geysers has been designated as Docket No. EC99-59-000. The section 203 application is currently pending before the Commission. Commission action here is without prejudice to any decision that the Commission may make in Docket No. EC99-59-000.

2/ See, e.g., Louisville Gas & Electric Co., 62 FERC ¶ 61,016 at 61,148 (1993).

- 746111

Docket No. ER99-1983-000 et al.


- 3 -

limit sales of ancillary services at market-based rates to sales into the New York ISO market. Accordingly, the Southern Energy companies are directed to submit compliance filings to limit sales of ancillary services at market-based rates to sales into the New York ISO market, doing so within 30 days of the date of this order.

Cordova Energy Energy Company LLC (Cordova) seeks Commission approval to reassign transmission capacity. We find this request to be consistent with our requirements.

Cordova, LG&E Capital Corporation and the Southern Energy companies must inform the Commission of the dates of commencement of service or closing of the divestiture transaction in Docket EC99-46-000 for their respective facilities.

By direction of the Commission.



Linwood A. Watson, Jr.
Acting Secretary.

746112

APPENDIX A

Applicants are hereby informed of the following rate schedule designations:

Geysers Power Company, LLC
Docket No. ER99-1993-000
 Effective Date: May 1, 1999

<u>Designation</u>	<u>Description</u>
(1) FERC Electric Tariff, Original Volume No. 1 Original Sheet No. 1	Market-Based Rate Tariff

Geysers Power Company, LLC
Docket No. ER99-1993-000
 Effective Date: April 30, 1999

<u>Designation</u>	<u>Description</u>
(2) Rate Schedule FERC No. 1	Geysers (Main) Generating Station Must-Run Master Agreement
(3) Supplement No. 1 to Rate Schedule FERC No. 1	Geysers (Main) Generating Station Must-Run Agreement "A"
(4) Supplement No. 2 to Rate Schedule FERC No. 1	Geysers (Main) Generating Station Must-Run Agreement "B"
(5) Supplement No. 3 to Rate Schedule FERC No. 1	Geysers (Main) Generating Station Must-Run Agreement "C"
(6) Supplement No. 4 to Rate Schedule FERC No. 1 (Redesignates Pacific Gas and Electric Company's Schedules for Geysers Main)	Geysers (Main) Generating Station Must-Run Agreement Schedules A - F
(7) Supplement No. 5 to Rate Schedule FERC No. 1	Amendment providing for Transfer of the Geysers Generating Station (Main) Must-Run Agreement from Pacific Gas and Electric Company to Company to Geysers Power Company, LLC

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- | | | |
|------|--|---|
| (8) | Rate Schedule FERC No. 2 | Geysers Generating Station (Units 13 and 16) Must-Run Master Agreement |
| (9) | Supplement No. 1 to Rate Schedule FERC No. 2 | Geysers Generating Station (Units 13 and 16) Must-Run Agreement "A" |
| (10) | Supplement No. 2 to Rate Schedule FERC No. 2 | Geysers Generating Station (Units 13 and 16) Must-Run Agreement "B" |
| (11) | Supplement No. 3 to Rate Schedule FERC No. 2 | Geysers Generating Station (Units 13 and 16) Must-Run Agreement "C" |
| (12) | Supplement No. 4 to Rate Schedule FERC No. 2 (Redesignates Pacific Gas and Electric Company's Schedules for Geysers Units 13 and 16) | Geysers Generating Station (Units 13 and 16) Must-Run Agreement Schedules A - F |
| (13) | Supplement No. 5 to Rate Schedule FERC No. 2 | Amendment providing for Transfer of the Geysers Generating Station (Main) Must-Run Agreement from Pacific Gas and Electric Company to Company to Geysers Power Company, LLC |

Southern Energy Lovett, L.L.C.

Docket No. ER99-2043-000

Effective Date: Closing of the divestiture transaction in Docket No. EC99-46-000

<u>Designation</u>	<u>Description</u>
(1) FERC Electric Tariff, Original Volume No. 1 Original Sheet Nos. 1-4	Market-Based Rate Tariff with Code of Conduct
(2) Service Agreement No. 1 under FERC Electric Tariff, Original Volume No. 1	Long term power purchase agreement with Orange and Rockland Utilities

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Southern Energy Bowline, L.L.C.
Docket No. ER99-2044-000
 Effective Date: Closing of the divestiture
 transaction in Docket No. EC99-46-000

<u>Designation</u>	<u>Description</u>
(1) FERC Electric Tariff, Original Volume No. 1 Original Sheet Nos. 1-4	Market-Based Rate Tariff with Code of Conduct
(2) Service Agreement No. 1 under FERC Electric Tariff, Original Volume No. 1	Long term power purchase agreement with Orange and Rockland Utilities

Southern Energy NY-Gen, L.L.C.
Docket No. ER99-2045-000
 Effective Date: Closing of the divestiture
 transaction in Docket No. EC99-46-000

<u>Designation</u>	<u>Description</u>
(1) FERC Electric Tariff, Original Volume No. 1 Original Sheet Nos. 1-4	Market-Based Rate Tariff with Code of Conduct
(2) Service Agreement No. 1 under FERC Electric Tariff, Original Volume No. 1	Long term power purchase agreement with Orange and Rockland Utilities

LG&E Capital Corporation
Docket No. ER99-2108-000
 Effective Date: Date service commences

<u>Designation</u>	<u>Description</u>
FERC Electric Tariff, Original Volume No. 1 Original Sheet Nos. 1-2	Market-Based Rate Tariff

Cordova Energy Company LLC
Docket No. ER99-2156-000
 Effective Date: Date service commences

<u>Designation</u>	<u>Description</u>
FERC Electric Tariff, Original Volume No. 1 Original Sheet Nos. 1-4	Market-Based Rate Tariff and Code of Conduct

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APPENDIX B

(1) If requested, waiver of Parts 41, 101, and 141 of the Commission's regulations is granted.

(2) Within 30 days of the date of this order, any person desiring to be heard or to protest the Commission's blanket approval of issuances of securities or assumptions of liabilities by those applicants who have sought such approval should file a motion to intervene or protest with the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. §§ 385.211 and 385.214.

(3) Absent a request to be heard within the period set forth in Paragraph (2) above, if the applicants have requested such authorization, the applicants are hereby authorized to issue securities and assume obligations or liabilities as guarantor, indorser, surety, or otherwise in respect of any security of another person; provided that such issue or assumption is for some lawful object within the corporate purposes of the applicants, compatible with the public interest, and reasonably necessary or appropriate for such purposes.

(4) If requested, until further order of this Commission, the full requirements of Part 45 of the Commission's regulations, except as noted below, are hereby waived with respect to any person now holding or who may hold an otherwise proscribed interlocking directorate involving the applicants. Any such person instead shall file a sworn application providing the following information:

- (a) full name and business address; and
- (b) all jurisdictional interlocks, identifying the affected companies and the positions held by that person.

(5) The Commission reserves the right to modify this order to require a further showing that neither the public nor private interests will be adversely affected by continued Commission approval of the applicants' issuances of securities or assumptions of liabilities, or by the continued holding of any affected interlocks.

(6) If requested, waiver of the provisions of Subparts B and C of Part 35 of the Commission's regulations, with the exception of sections 35.12(a), 35.13(b), 35.15 and 36.16, is granted for transactions under the rate schedules at issue here.

(7) (a) Applicants who own generating facilities may file umbrella service agreements for short-term power sales (one year or less) within 30 days of the date of commencement of short-term service, to be followed by quarterly transaction summaries of

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TOWNE BALLANTINE LLP

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specific sales (including risk management transactions if they result in actual delivery of electricity). For long-term transactions (longer than one year), applicants must submit the actual individual service agreement for each transaction within 30 days of the date of commencement of service. To ensure the clear identification of filings, and in order to facilitate the orderly maintenance of the Commission's files and public access to documents, long-term transaction service agreements should not be filed together with short-term transaction summaries. For applicants who own, control or operate facilities used for the transmission of electric energy in interstate commerce, prices for generation, transmission and ancillary services must be stated separately in the quarterly reports and long-term service agreements.

(b) Applicants who do not own generating facilities must file quarterly reports detailing the purchase and sale transactions undertaken in the prior quarter (including risk management transactions if they result in actual delivery of electricity).

(8) The first quarterly report filed by an applicant in response to Paragraph (7) above will be due within 30 days of the end of the quarter in which the rate schedule is made effective.

(9) Each applicant must file an updated market analysis within three years of the date of this order, and every three years thereafter. The Commission reserves the right to require such an analysis at any time. The applicants must also inform the Commission promptly of any change in status that would reflect a departure from the characteristics the Commission has relied upon in approving market-based pricing. These include, but are not limited to: (a) ownership of generation or transmission supplies; or (b) affiliation with any entity not disclosed in the applicants' filing that owns generation or transmission facilities or inputs to electric power production, or affiliation with any entity that has a franchised service area. Alternatively, the applicants may elect to report such changes in conjunction with the updated market analysis required above. Each applicant must notify the Commission of which option it elects in the first quarterly report filed pursuant to Paragraph (7) above.

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APPENDIX C

[APPLICANT]

SUPPLEMENT NO. _ TO RATE SCHEDULE NO. _

STATEMENT OF POLICY
AND CODE OF CONDUCT
WITH RESPECT TO THE RELATIONSHIP BETWEEN
[POWER MARKETER] AND [PUBLIC UTILITY]

Marketing of Power

1. To the maximum extent practical, the employees of [Power Marketer] will operate separately from the employees of [Public Utility].
2. All market information shared between [Public Utility] and [Power Marketer] will be disclosed simultaneously to the public. This includes all market information, including but not limited to, any communication concerning power or transmission business, present or future, positive or negative, concrete or potential. Shared employees in a support role are not bound by this provision, but they may not serve as an improper conduit of information to non-support personnel.
3. Sales of any non-power goods or services by [Public Utility], including sales made through its affiliated EWGs or QFs, to [Power Marketer] will be at the higher of cost or market price.
4. Sales of any non-power goods or services by the [Power Marketer] to [Public Utility] will not be at a price above market.

Brokering of Power

To the extent [Power Marketer] seeks to broker power for [Public Utility]:

5. [Power Marketer] will offer [Public Utility's] power first.
6. The arrangement between [Power Marketer] and [Public Utility] is non-exclusive.
7. [Power Marketer] will not accept any fees in conjunction with any Brokering services it performs for [Public Utility].

In Re the:

Application of Louisville Gas & Electric Company)
and Kentucky Utilities Company for a Certificate)
of Convenience and Necessity for the Acquisition)
of two 164 Megawatt Combustion Turbines)

Case No. 99-056

RECEIVED
MAY 20 1999
PUBLIC SERVICE
COMMISSION

RESPONSE TO LOUISVILLE GAS & ELECTRIC
COMPANY'S AND KENTUCKY UTILITY COMPANY'S
REQUESTS FOR INFORMATION TO THE ATTORNEY GENERAL

May 20, 1999

Commonwealth of Kentucky
Before the Public Service Commission
Case No. 99-056

WITNESS: DAVID H. BROWN KINLOCH

ITEM 1 PAGE 1 OF 1

- 1) Please refer to page 3, line 21 through page 4, line 22 of your testimony and provide a brief description of the subjects covered in your previous testimony in other cases.

ANSWER:

The previous testimony presented before the Commission includes rate cases, certificate of convenience and necessity cases, fuel clause cases, environmental surcharge cases, demand side management cases, generation planning cases, and other cases relating to utility operations.

In rate cases, testimony has primarily focused on cost-of-service and rate design issues, but has included a variety of other subjects depending on the specifics of the case.

In certificate of convenience and necessity cases, demand side management cases, and generation planning cases, testimony has involved utility load characteristics and generation planning.

In fuel clause and environmental surcharge cases, testimony involved not only the level of the charge but also how those charges were to be allocated across customer classes.

Commonwealth of Kentucky
Before the Public Service Commission
Case No. 99-056

WITNESS: DAVID H. BROWN KINLOCH

ITEM 2 PAGE 1 OF 2

- 2) Please identify each and every report, testimony or other document authored by you or for which you are otherwise responsible, not identified in your testimony, that relates in any way to the subject matter of your testimony and provide a copy.

ANSWER:

Mr. Brown Kinloch has worked with the Office of the Attorney General in the past and has assisted in the preparation of comments filed by the Attorney General in Integrated Resource Plan review cases before the Commission. In addition, the testimony made reference to technical papers that relate to the subject matter in the testimony. The specific technical papers are the following:

Author:

David H. Kinloch, James M. Parmelee, Frank E. Wicks, Martin Becker and Stephen Yerazunis: Impact of Solar Heating Options Upon Electric Power Systems. Center for Technology Assessment, Rensselaer Polytechnic Institute; Troy, New York. Presented at the IEEE Power Engineering Society Summer Meeting in Vancouver, British Columbia, Canada; July 1979.

David H. Kinloch, James M. Parmelee, Frank E. Wicks, Martin Becker and Stephen Yerazunis: Potential and Impacts of Electric Wind Generators Upon Electric Power Systems. Center for Technology Assessment, Rensselaer Polytechnic Institute; Troy, New York. Presented at the IEEE Power Engineering Society Winter Meeting in New York City; February 1980.

David H. Kinloch, Norman Hinsey and John Tichy: Computer Simulation of a Passive Solar Assisted Heat Pump. Mechanical Engineering Department, Rensselaer Polytechnic Institute; Troy, New York. Presented at the ASME-DOE Solar Conference in Reno, Nevada; April 1981.

Contributing Author

James M. Parmelee, William E. Davis, William L. Rutz, David H. Kinloch, Martin Becker and Frank E. Wicks: Preliminary Analysis for the First New York State Draft Energy Plan. New York State Energy Office, Albany, New York and the Center for Technology Assessment, Rensselaer Polytechnic Institute; Troy, New York.

Commonwealth of Kentucky
Before the Public Service Commission
Case No. 99-056

WITNESS: DAVID H. BROWN KINLOCH

ITEM 2 PAGE 2 OF 2

Contributing Author

Richard Montedonico, Ferdinand Okose, David H. Kinloch, Martin Becker, Frank E. Wicks and Stephen Yerazunis: Fuel, Generation and Environmental Analysis of Electric Vehicles. Center for Technology Assessment, Rensselaer Polytechnic Institute; Troy, New York. Presented at the IEEE Power Engineering Society Winter Meeting in New York City, February 1980.



Commonwealth of Kentucky
Before the Public Service Commission
Case No. 99-056

WITNESS: DAVID H. BROWN KINLOCH

ITEM 3 PAGE 1 OF 1

- 3) Please identify all documents you reviewed in the course of preparing your testimony.

ANSWER:

- 1) The Application in this case
- 2) Kentucky Utilities' 1996 Integrated Resource Plan
- 3) Louisville Gas and Electric Company's 1993 Integrated Resource Plan

Commonwealth of Kentucky
Before the Public Service Commission
Case No. 99-056

WITNESS: DAVID H. BROWN KINLOCH

ITEM 4 PAGE 1 OF 1

- 4) Please provide all documents which support your testimony at page 12, lines 4 through 7.

ANSWER:

This statement is based on the comparison of the load profile in Kentucky Utilities' 1996 Integrated Resource Plan and the load profile in Louisville Gas and Electric Company's 1993 Integrated Resource Plan, as well as the Applicants' statement in the merger case that a combined system should be able to defer the addition of some new generating capacity, by the combination of generating assets and joint dispatch of the two systems.



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Commonwealth of Kentucky
Before the Public Service Commission
Case No. 99-056

WITNESS: DAVID H. BROWN KINLOCH

ITEM 5 PAGE 1 OF 1

- 5) Refer to page 12, lines 21-23 of your testimony. Please provide all information that shows that current prices for battery storage and compressed air storage, in sufficient megawatts to satisfy the Company's needs, are more economical than the proposed combustion turbines.

ANSWER:

The testimony never states that a single technology can or should be used to meet all of the Applicants' capacity shortfall. In fact, a utility is in a much more secure position if it has a diverse portfolio of generating technologies and fuels. This type of diverse approach was found in LG&E's 1993 Integrated Resource Plan. Unfortunately, the new merged utility seems to be just considering gas fired capacity at this time. If a utility become too dependent on one or two technologies or fuels, events such as a gas shortage or a coal strike can jeopardize the ability to meet customer load in a crisis.

Commonwealth of Kentucky
Before the Public Service Commission
Case No. 99-056

WITNESS: DAVID H. BROWN KINLOCH

ITEM 6 PAGE 1 OF 1

- 6) On page 10, line 6, you state that you "question how fundamentally the power market changed". Please explain the basis of this statement and, if you disagree that the power market has changed, explain the basis for this belief.

ANSWER:

On a graph, a single point cannot predict a trend. This is especially true when that one point is the last data point at the end of a line. With the market, the question I pose is whether the summer of 1998 is the beginning of a new trend or simply a one-time event that won't be repeated? It is unclear at this time if the market has fundamentally changed. In response to last summer's crisis, changes may not only come in the power market. It is unlikely that the utilities that had generators off-line for maintenance in June 1998, will allow that to happen again in June 1999. And other players, such as Dynergy in the Applicants' own service territory, will build capacity to meet a perceived shortage. Whether the power market fundamentally changes will depend on whether there are ongoing crises like that of the summer of 1998 in the future. At this time, it is impossible to determine if any long-term changes have taken place in the power market.

Application of Louisville Gas & Electric Company)
and Kentucky Utilities Company for a Certificate)
of Convenience and Necessity for the Acquisition)
of two 164 Megawatt Combustion Turbines)

Case No. 99-056

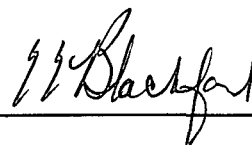
CERTIFICATE OF SERVICE AND OF FILING

I hereby certify that this the 20th day of May, 1999, I have filed the original and ten copies of the foregoing with the Kentucky Public Service Commission at 730 Schenkel Lane, Frankfort, Ky., 40601, and that I have served the parties by mailing a copy of same, postage prepaid, to:

RONALD WILHITE
VICE PRESIDENT REGULATORY AFFAIRS
KENTUCKY UTILITIES COMPANY
P O BOX 32010
LOUISVILLE KY 40232

GREG FERGUSON
REGULATORY AFFAIRS COORDINATOR
LOUISVILLE GAS AND ELECTRIC COMPANY
P O BOX 32010
LOUISVILLE KY 40232 2010

KENDRICK R RIGGS
ALLYSON STURGEON
LAUREN ANDERSON
OGDEN NEWELL & WELCH
1700 CITIZENS PLAZA
500 WEST JEFFERSON STREET
LOUISVILLE KY 40202



Application of Louisville Gas & Electric Company)
and Kentucky Utilities Company for a Certificate)
of Convenience and Necessity for the Acquisition)
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Case No. 99-056

CERTIFICATE OF SERVICE AND OF FILING

I hereby certify that this the 20th day of May, 1999, I have filed the original and ten copies of the foregoing with the Kentucky Public Service Commission at 730 Schenkel Lane, Frankfort, Ky., 40601, and that I have served the parties by mailing a copy of same, postage prepaid, to:

RONALD WILHITE
VICE PRESIDENT REGULATORY AFFAIRS
KENTUCKY UTILITIES COMPANY
P O BOX 32010
LOUISVILLE KY 40232

GREG FERGUSON
REGULATORY AFFAIRS COORDINATOR
LOUISVILLE GAS AND ELECTRIC COMPANY
P O BOX 32010
LOUISVILLE KY 40232 2010

KENDRICK R RIGGS
ALLYSON STURGEON
LAUREN ANDERSON
OGDEN NEWELL & WELCH
1700 CITIZENS PLAZA
500 WEST JEFFERSON STREET
LOUISVILLE KY 40202



OGDEN NEWELL & WELCH

RICHARD F. NEWELL
JOHN T. BALLANTINE
JOSEPH C. OLDHAM
JAMES L. COORSSEN*
STEPHEN F. SCHUSTER
JOHN G. TREITZ, JR.
WALTER LAPP SALES
ERNEST W. WILLIAMS
SCOTT W. BRINKMAN
BRUCE K. DUDLEY
W. GREGORY KING
KENDRICK R. RIGGS†

JAMES B. MARTIN, JR.
LISA ANN VOGT
TURNER P. BERRY
JOHN WADE HENDRICKS
LYNN H. WANGERIN
DOUGLAS C. BALLANTINE
THOMAS E. RUTLEDGE††
THOMAS M. WILLIAMS**
SHARON A. MATTINGLY
LAUREN ANDERSON
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ANTHONY L. SCHNELL

1700 CITIZENS PLAZA
500 WEST JEFFERSON STREET
LOUISVILLE, KENTUCKY 40202-2874
(502) 582-1601
FAX: (502) 581-9564

ALLYSON K. STURGEON
MOLLY HYLAND WOLFRAM
TIMOTHY J. EIFLER
KELLY S. HENRY
J. GREGORY CORNETT
MELONY J. LANE
ROBERT W. ADAMS III**
MAUREEN M. CARR††
E. PATRICK MULVIHILL
JOSEPH A. KIRWAN
CHRISTY A. AMES

OF COUNSEL
JAMES S. WELCH
JOHN S. GREENEBAUM PSC
ROBERT E. THIEMAN
ENOCH M. POON
SQUIRE R. OGDEN
1899-1984
ALSO ADMITTED:
*FLORIDA
**INDIANA
†VIRGINIA
††DISTRICT OF COLUMBIA
□OHIO

Writer's Direct Dial: (502) 560-4222
Writer's E-mail: kriggs@ogdenlaw.com
Writer's Direct Fax: (502) 627-8722

May 7, 1999

Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
P.O. Box 615
Frankfort, KY 40602-0615

RECEIVED

MAY 07 1999

PUBLIC SERVICE
COMMISSION

RE: Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines
Case No. 99-056

Dear Ms. Helton:

Please find enclosed and accept for filing the original and eleven copies of Louisville Gas and Electric Company's and Kentucky Utilities Company's Requests for Information on the above-referenced case. Please return a file-marked copy to me in the enclosed self-addressed, stamped envelope. ✓

Yours very truly,



Kendrick R. Riggs

KRR/ec
Enclosures
cc: Parties of Record

155530.1

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

MAY 07 1999

PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. 99-056
AND NECESSITY FOR THE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

LOUISVILLE GAS AND ELECTRIC COMPANY'S
AND KENTUCKY UTILITIES COMPANY'S REQUESTS
FOR INFORMATION TO THE ATTORNEY GENERAL

Louisville Gas and Electric Company and Kentucky Utilities Company (collectively "the Companies") submit the following requests for information to the Attorney General:

1. Please refer to page 3, line 21 through page 4, line 22 of your testimony and provide a brief description of the subjects covered in your previous testimony in other cases.
2. Please identify each and every report, testimony or other document authored by you or for which you are otherwise responsible, not identified in your testimony, that relates in any way to the subject matter of your testimony and provide a copy.
3. Please identify all documents you reviewed in the course of preparing your testimony.
4. Please provide all documents which support your testimony at page 12, lines 4 through 7.
5. Refer to page 12, lines 21-23 of your testimony. Please provide all information that shows that current prices for battery storage and compressed air storage, in sufficient megawatts to satisfy the Companies' needs, are more economical than the proposed combustion turbines.

6. On page 10, line 6, you state that you "question how fundamentally the power market changed." Please explain the basis of this statement and, if you disagree that the power market has changed, explain the basis for this belief.

Respectfully submitted,



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202
502/582-1601

John R. McCall
Executive Vice President
General Counsel
Corporate Secretary

Douglas M. Brooks
Senior Counsel Specialist, Regulatory


Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 7th day of May, 1999.

Elizabeth E. Blackford, Esq.
Assistant Attorney General
Office of Rate Intervention
1024 Capital Center Drive
Frankfort, KY 40601

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202


Counsel for Louisville Gas and
Electric Company and
Kentucky Utilities Company

OGDEN NEWELL & WELCH

RICHARD F. NEWELL
JOHN T. BALLANTINE
JOSEPH C. OLDHAM
JAMES L. COORSSEN*
STEPHEN F. SCHUSTER
JOHN G. TREITZ, JR.
WALTER LAPP SALES
ERNEST W. WILLIAMS
SCOTT W. BRINKMAN
BRUCE K. DUDLEY
W. GREGORY KING
KENDRICK R. RIGGS†

JAMES B. MARTIN, JR.
LISA ANN VOGT
TURNER P. BERRY
JOHN WADE HENDRICKS
LYNN H. WANGERIN
DOUGLAS C. BALLANTINE
THOMAS E. RUTLEDGE††
THOMAS M. WILLIAMS**
SHARON A. MATTINGLY
LAUREN ANDERSON
GENE LYNN HUMPHREYS
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MOLLY HYLAND WOLFRAM
TIMOTHY J. EIFLER
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J. GREGORY CORNETT
MELONY J. LANE
ROBERT W. ADAMS III**
MAUREEN M. CARR††^o
E. PATRICK MULVIHILL
JOSEPH A. KIRWAN
CHRISTY A. AMES

OF COUNSEL
JAMES S. WELCH
JOHN S. GREENEBAUM PSC
ROBERT E. THIEMAN
ENOCH M. POON
SQUIRE R. OGDEN
1899-1984

ALSO ADMITTED:
*FLORIDA
**INDIANA
†VIRGINIA
††DISTRICT OF COLUMBIA
^oOHIO

May 4, 1999

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MAY 04 1999

PUBLIC SERVICE
COMMISSION

Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
Frankfort, Kentucky 40602

**Re: In the Matter of: Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines
PSC Case No. 99-056 -**

Dear Ms. Helton:

Please find enclosed and accept for filing an original and six copies of an Amended Petition for Confidential Protection by Louisville Gas and Electric Company and Kentucky Utilities Company. The enclosed document amends the Petitions for Confidential Protection filed on April 1, 1999 and April 19, 1999. Both the April 1 and the April 19 Petitions requested confidential protection for responses to a Request for Purchased Power (RFPP) that the Companies sent out on February 10, 1999. The Commission denied the April 1 Petition by letter of April 15, 1999. Although the Companies have not yet received a response to the April 19 Petition, it addressed a Net Present Worth Analysis of the RFPP responses. Because of the common subject matter, therefore, the enclosed Petition amends both of these prior Petitions. Please maintain the information which is the subject of the Amended Petition confidential pending the Commission's ruling.

Sincerely,



Lauren Anderson
Attorney

cc: Parties of Record

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE RESOURCE ACQUISITION OF TWO 164 MEGAWATT COMBUSTION TURBINES))) CASE NO. 99-056)))

RECEIVED

MAY 04 1999

AMENDED PETITION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY FOR CONFIDENTIAL PROTECTION

PUBLIC SERVICE COMMISSION

Pursuant to 807 KAR 5:001 Section 7, Louisville Gas and Electric Company and Kentucky Utilities Company (collectively the "Companies") petition the Public Service Commission (the "Commission") to grant confidential protection to certain information contained in the Companies' Responses to Orders issued by the Public Service Commission (the PSC or the Commission) on March 19, 1999 and April 9, 1999. In support of this Petition, the Companies state as follows:

- 1. PSC Request No. 17 of the Commission's Order of March 19, 1999 (PSC-17) directs the Companies to provide copies of the complete contract (the "Contract") between LG&E Capital Corp. and Asea Brown Boveri (ABB), the combustion turbine vendor. The Companies are requesting confidential treatment of Appendix B to the Contract, "Specifications of Equipment and Work." ABB is in the business of manufacturing and selling gas-fired combustion turbines. The Specifications of Equipment and Work contains technical information and trade secrets of ABB which that company has designated as confidential. The Contract's

General Conditions of Sale, filed with the Commission as Exhibit 3a to the Application for a Certificate of Public Convenience and Necessity, states that equipment documents and other proprietary information furnished by ABB shall remain ABB's exclusive property. (See Section 17.1, page 23 of the General Conditions of Sale.) The Companies are thus required by the Contract to protect ABB's proprietary information from public disclosure if possible. Disclosure of this information would provide an unfair advantage to ABB's competitors, and would negatively impact future business transactions between ABB and LG&E Capital Corp., LG&E Energy Corp. or the Companies.

2. PSC Request No. 23 of the Commission's Order of March 19, 1999 (PSC-23) asks for copies of responses that the Companies received to a request for purchased power (RFPP) issued February 10, 1999. Each company that answered the Companies' RFPP designated its response as confidential. The Companies have protected the confidentiality of the proposals as requested by the respondents, and only those employees with a need for this information have had access to it. Public disclosure of the RFPP responses would compromise the Companies' ability to obtain responses to any future requests for proposals or RFPPs, which would likely involve some, if not all, of the same respondents. A reduction in the number of responses due to disclosure concerns would result in higher costs for future capacity. Disclosure of the RFPP responses could also provide pricing information to utilities, power marketers and other entities which compete with LG&E and KU in the wholesale power market, which could put the Companies at an unfair disadvantage in their efforts to market surplus power.

3. PSC Request No. 9 of the Commission's Order of April 9, 1999 (PSC-S9) requests a present worth analysis of the RFPP responses. The response to PSC-S9 is a Net Present Value Analysis of those responses. This is the same information provided in the

response to PSC-23, although in a different form. Each company that answered the Companies' RFPP designated its response as confidential. The Companies have protected the confidentiality of the proposals as requested by the respondents, and only those employees with a need for this information have had access to it. Public disclosure of the RFPP responses would compromise the Companies' ability to obtain responses to any future requests for proposals or RFPPs, which would likely involve some, if not all, of the same respondents. A reduction in the number of responses due to disclosure concerns would result in higher costs for future capacity. Disclosure of the RFPP responses could also provide pricing information to utilities, power marketers and other entities which compete with LG&E and KU in the wholesale power market, which could put the Companies at an unfair disadvantage in their efforts to market surplus power.

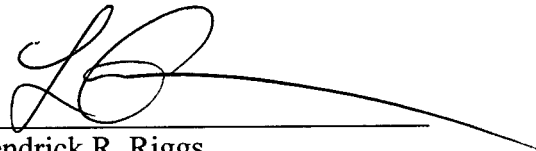
4. By letter dated February 10, 1999, the Commission granted confidential protection to similar information submitted by East Kentucky Power Cooperative, Inc. (EKP), in Case No. 98-544. Copies of EKP's Petition for Confidential Treatment of Information and the Commission's February 10, 1999 response are attached hereto. The information submitted by EKP and granted confidential treatment consisted of responses to a request for peaking capacity which EKP had sent to other power vendors. This information is substantially similar to the information for which the Companies are now seeking confidential treatment.

5. Under KRS 61.878(1)(c), records confidentially disclosed to an agency which are generally recognized as confidential or proprietary in nature are exempt from public inspection. The information described above constitutes confidential proprietary information, the disclosure of which would jeopardize the Companies' future transactions with wholesale power marketers and with ABB, and provide an unfair commercial advantage to ABB's and the Companies' competitors.

6. The Companies do not object to disclosure of the confidential information, pursuant to a protective agreement, to the Attorney General or other intervenors with a legitimate interest in reviewing the confidential information for the purpose of intervening in this case.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company respectfully request that the Commission grant confidential protection to the information designated as confidential for a period of five years from the date of the filing of this application, or in the alternative, schedule an evidentiary hearing on all factual issues.

Respectfully submitted,



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202
502/582-1601

John R. McCall
Executive Vice President
General Counsel
Corporate Secretary
Douglas M. Brooks
Senior Counsel Specialist,
Regulatory

Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 4th day of May, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202



Counsel for Louisville Gas
and Electric Company and
Kentucky Utilities Company



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
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Ronald B. McCloud, Secretary
Public Protection and
Regulation Cabinet

Helen Helton
Executive Director
Public Service Commission

Paul E. Patton
Governor

May 3, 1999

Mr. Ronald Willhite
Vice President – Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, Kentucky 40232

Mr. Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
Louisville, Kentucky 40232-2010

Hon. Kendrick R. Riggs
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202

Hon. Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Frankfort, Kentucky 40601

Hon. Michael L. Kurtz
Boehm, Kurtz & Lowry
2110 BCLD Center
36 East Seventh Street
Cincinnati, Ohio 45202

Re: Case No. 99-056
Louisville Gas and Electric Company

Dear Ms. Blackford and Gentlemen:

Attached is a copy of the memorandum which is being filed into the record of the above-referenced case. If you have any comments that you would like to make regarding the contents of the informal conference memorandum, please do so within five days of receipt of this letter. Should you have any questions regarding same, please contact Richard Raff at (502) 564-3940, Extension 260.

Sincerely,

Helen C. Helton
Executive Director

Attachment



INTRA-AGENCY MEMORANDUM
KENTUCKY PUBLIC SERVICE COMMISSION

TO: Main Case File No. 99-056

FROM: Richard G. Raff *RGR*
Isaac Scott
Elie Russell
Marvin Goff

DATE: May 3, 1999

RE: Informal Conference

FILED
MAY 03 1999
PUBLIC SERVICE
COMMISSION

In response to the motion of LG&E and KU, an informal conference was held at the Commission's offices on April 23, 1999. The names of the attendees are set forth on a list attached hereto. Also attached is a copy of the agenda for the meeting.

LG&E/KU indicated that construction was approximately two weeks ahead of schedule, with both units to be in service during July 1999. To the extent power is generated and sold from units prior to acquisition by LG&E/KU, LG&E Capital Corp. will operate units as a merchant plant. This may require a need for three agreements: 1) facilities operating agreement; 2) power marketing agreement; and 3) transmission service agreement.

Discussions were also held on the environmental permits, emissions limitations, and accounting issues.

Attachments

cc: Parties of Record

CASE NO. 99-056
 LG&E AND KU - COMBUSTION TURBINE CERTIFICATE
 INFORMAL CONFERENCE - APRIL 23, 1999

NAME	WITH
Richard Roff	PSC - Legal
Elie Russell	PSC
MARVIN GOFF	PSC
Dean S. Scott	PSC - Financial Analysis
John Stauffacher	Dynegy Power
Betsy Blackford	OAG
DAVID FROEMM	KIUC
David Brown Kinloch	OAG
MICHAEL S. PEER	LEC
WAYNE LUCAS	LGE/KU
NOEL W. LIVELY	KU
RON WILLHITE	LGE/KU
GREG FERGASON	LGE/KU
Lonnie Bellar	LGE/KU
Khalil R. Papp	Copier vendor with KU/LGE
CARL M. PEIFFER	KU/LGE
Michael D. Robinson	LGE/KU

**INFORMAL CONFERENCE
APRIL 23, 1999 10:00 AM
CASE NO. 99-056**

OPENING REMARKS - Kendrick Riggs

OVERVIEW - Ronald Willhite

- **Power Requirements**
- **Acquisition of CTs by LG&E Capital Corp.**
- **KU Involvement**
- **Introductions**
 - **Noel Lively Manager, Generation Construction**
 - **Caryl Pfeiffer Director Environmental Affairs**
 - **Wayne Lucas Executive Vice President - Power Generation**
 - **Mike Beer Senior Corporate Attorney**
 - **Michael Robinson Vice President and Controller**

CONSTRUCTION STATUS - Noel Lively

- **Project Overview**
- **Pictures**
- **Project Timeline**
- **Performance Testing**

ENVIRONMENTAL PERMITS - Caryl Pfeiffer

- **Status of Permits**

POWER GENERATION - Wayne Lucas

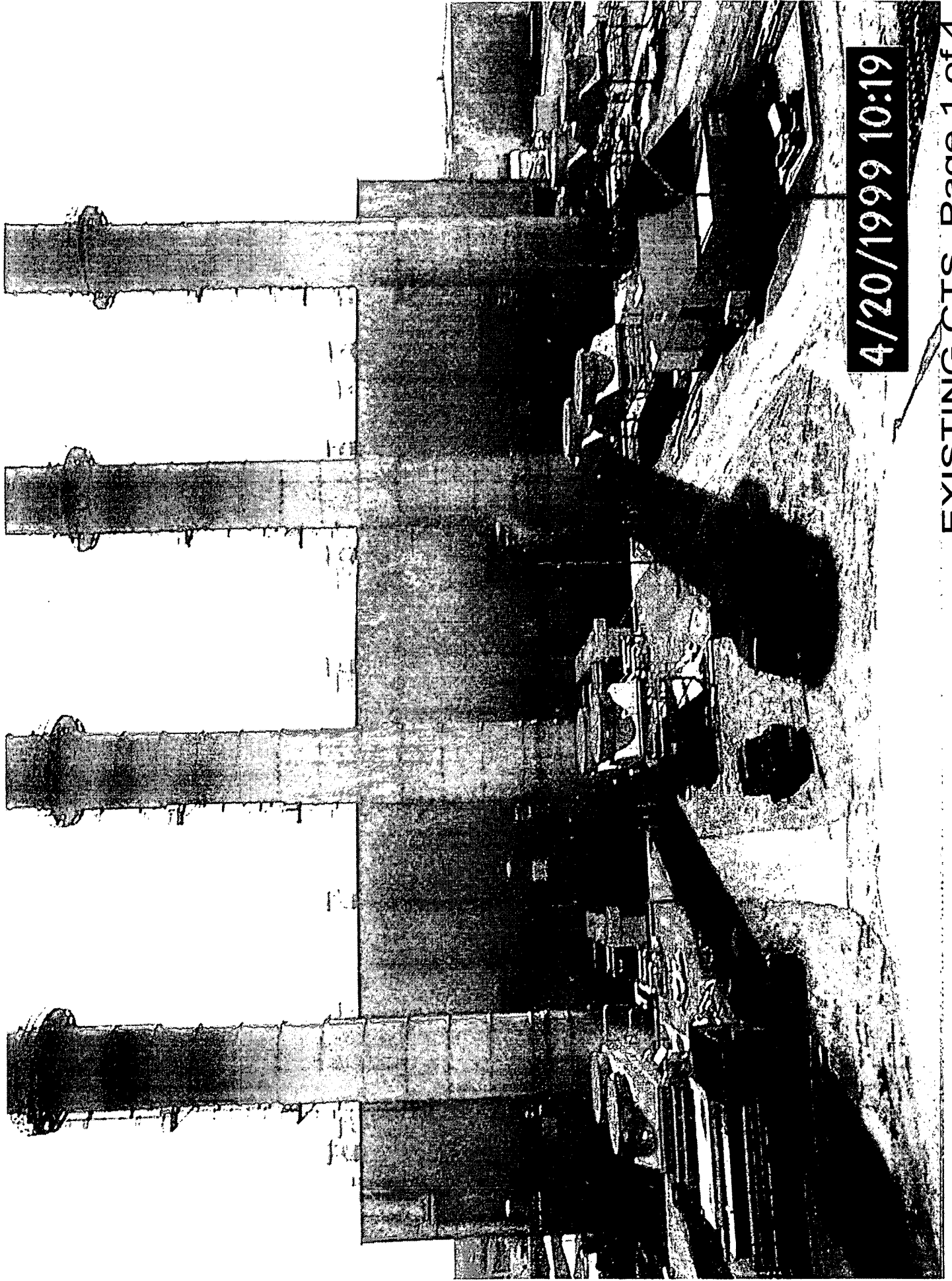
- **CT Operations and Maintenance**
- **Test Energy**

EXEMPT WHOLESALE GENERATOR (EWG) - Mike Beer

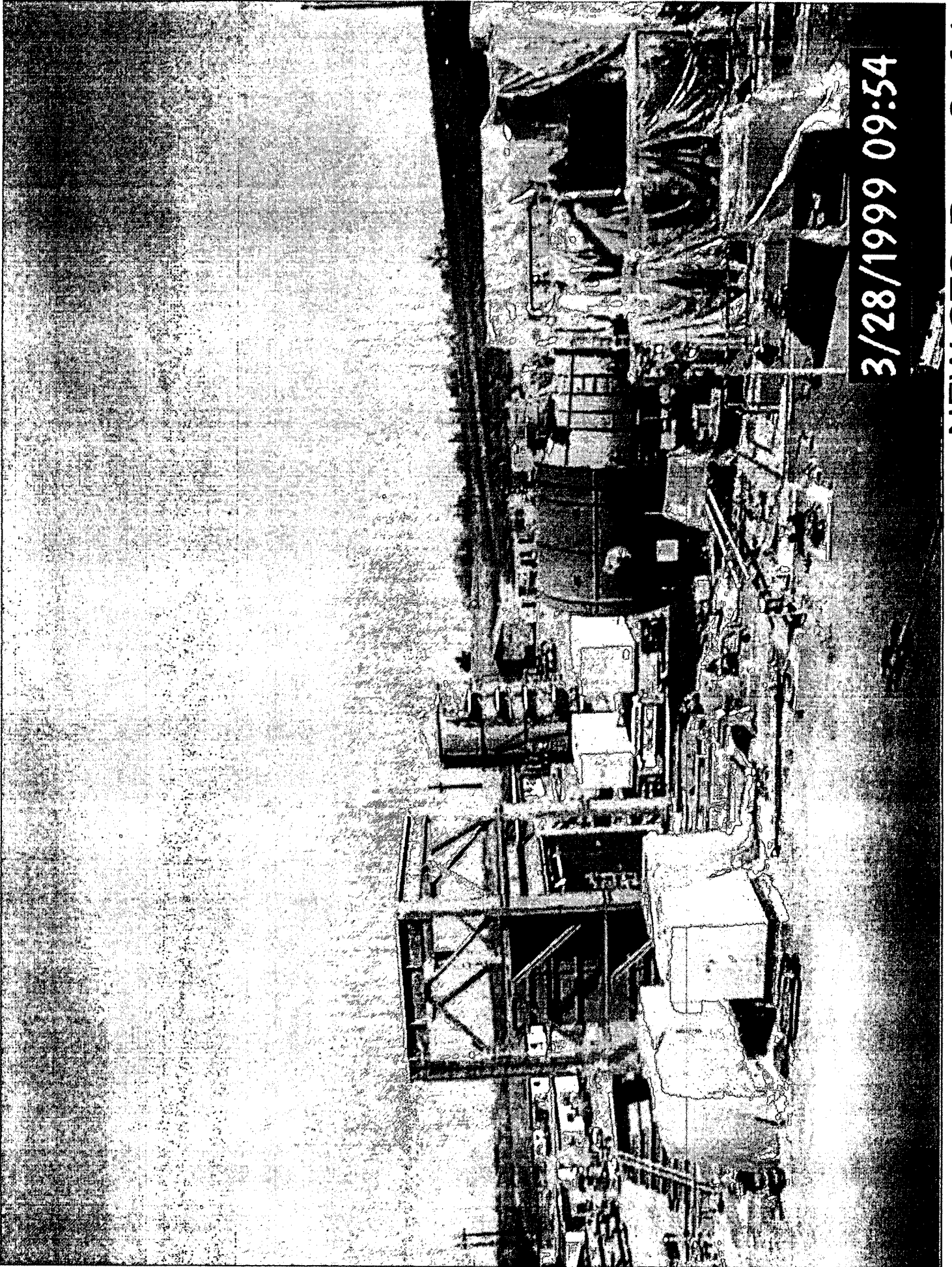
- **LG&E Capital Corp's Use of CTs**
- **Agreements**
- **Affiliate Issues**

ACCOUNTING - Michael Robinson

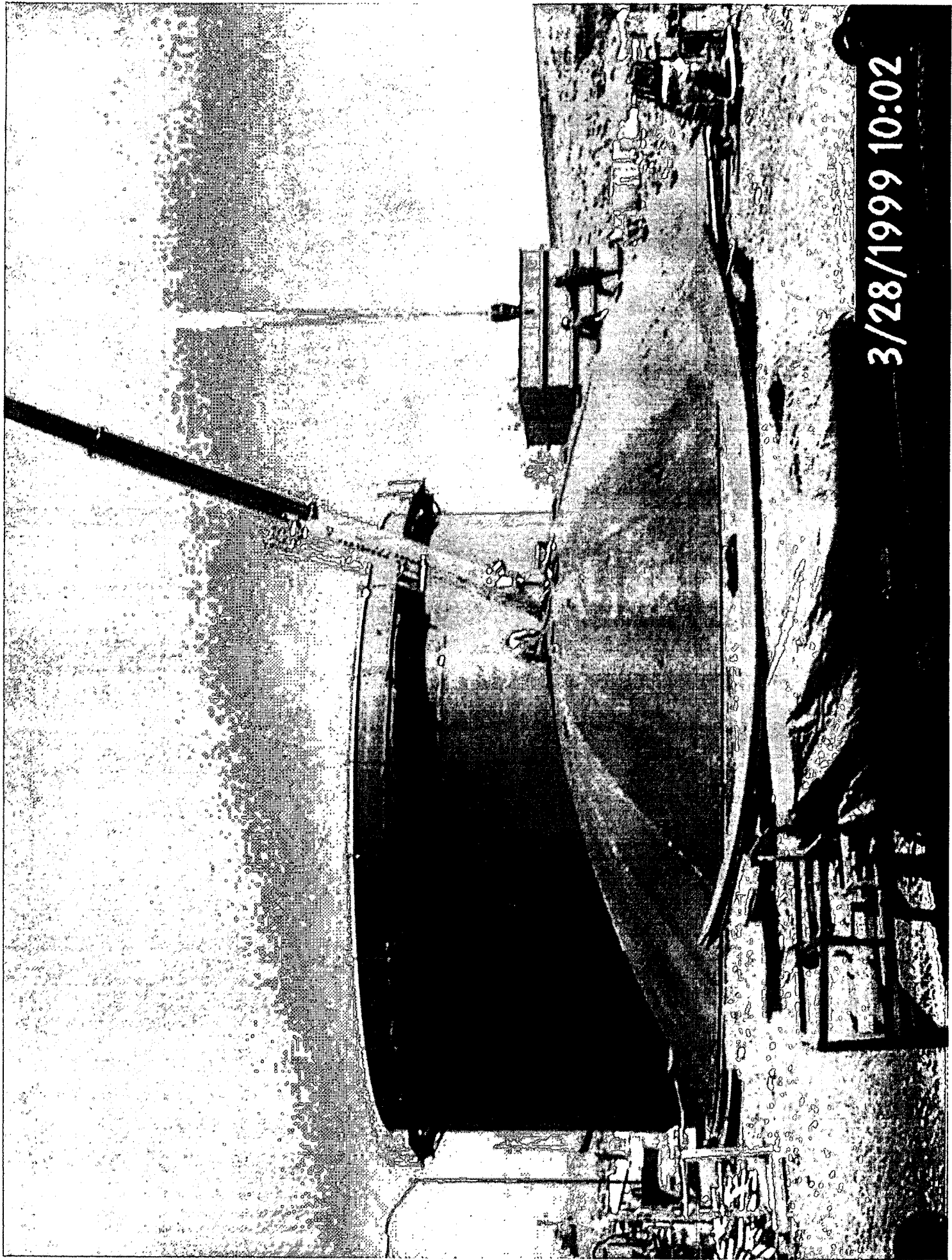
- **Cost Tracking - Work Orders**



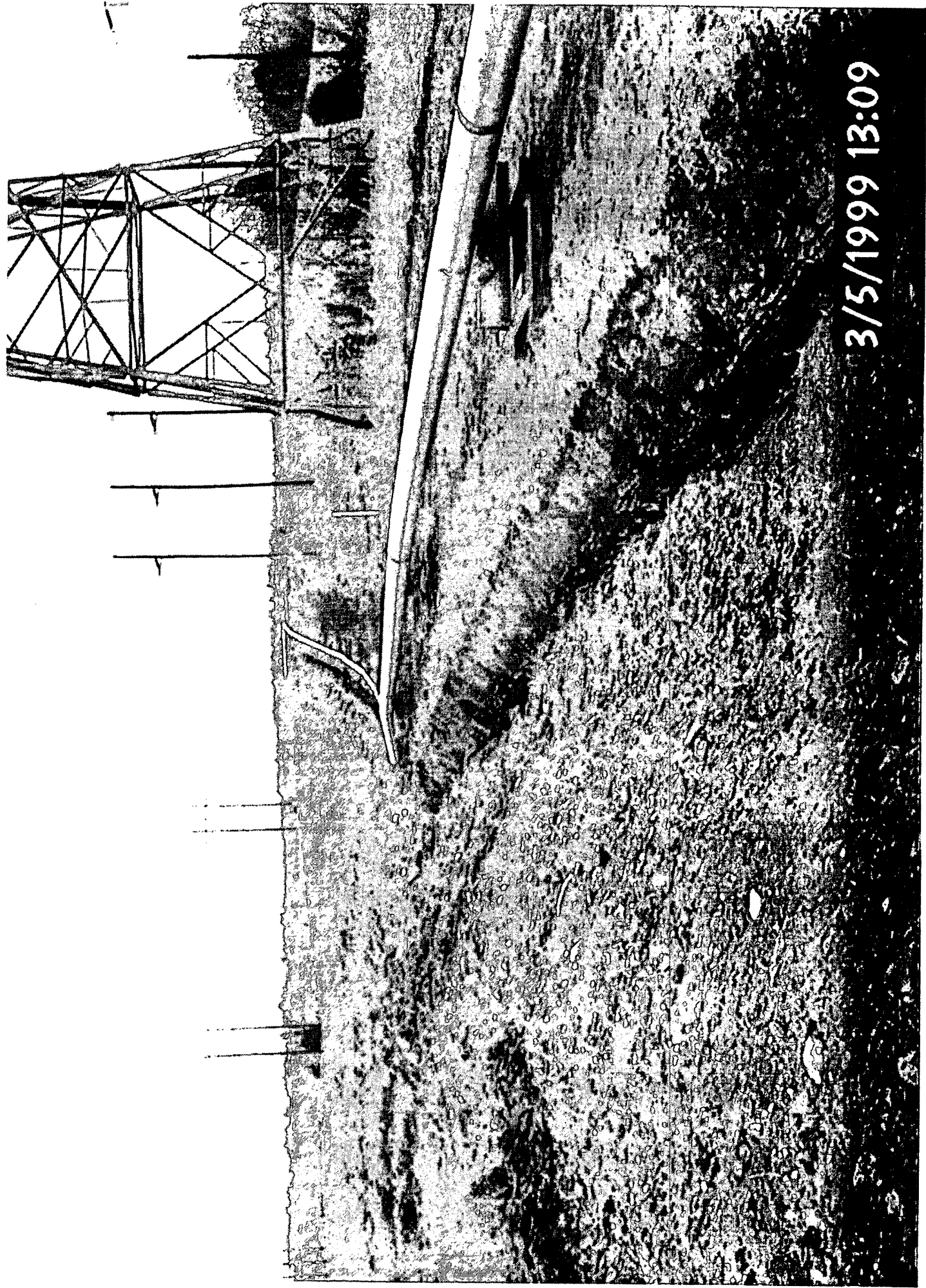
4/20/1999 10:19



3/28/1999 09:54



3/28/1999 10:02



3/5/1999 13:09

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

APR 29 1999

CASE NO. 99-056

PUBLIC SERVICE
COMMISSION

APPLICATION OF
LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY
FOR THE ACQUISITION OF TWO 164 MEGAWATT
COMBUSTION TURBINES

TESTIMONY OF
DAVID H. BROWN KINLOCH

On Behalf of

THE OFFICE OF THE ATTORNEY GENERAL
FOR THE COMMONWEALTH OF KENTUCKY

APRIL 1999

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COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

* * * * *

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)	
ELECTRIC COMPANY AND KENTUCKY)	
UTILITIES COMPANY FOR A CERTIFICATE)	CASE NO. 99-056
OF CONVENIENCE AND NECESSITY FOR)	
THE ACQUISITION OF TWO 164 MEGAWATT)	
COMBUSTION TURBINES)	

DIRECT TESTIMONY OF DAVID H. BROWN KINLOCH

Q1: PLEASE STATE YOUR NAME AND ADDRESS.

A1: My name is David H. Brown Kinloch and my business address is Soft Energy Associates, 414 S. Wenzel Street, Louisville, KY 40204.

Q2: FOR WHOM HAVE YOU PREPARED TESTIMONY?

A2: I have prepared this testimony for the Office of the Attorney General for the Commonwealth of Kentucky.

Q3: PLEASE STATE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A3: I have received two master's degrees from Rensselaer Polytechnic Institute (RPI) in Troy, New York. I also received two undergraduate degrees from the same

1 school. My master's degrees are a Master of Engineering in Mechanical
2 Engineering and a Master of Science in Science, Technology and Values,
3 received in 1979 and 1981 respectively. My undergraduate degrees are in
4 Mechanical Engineering and Philosophy. Much of my master's work included
5 preparing Electric Generation Planning studies for the Center for Technology
6 Assessment at Rensselaer.

7

8 Q4: WHAT AREA OF YOUR BACKGROUND ARE YOU DRAWING UPON TO
9 PREPARE THIS TESTIMONY?

10 A4: I have prepared this testimony relying on my expertise in three areas: utility
11 planning, implementation of energy conservation programs, and my knowledge of
12 the regulated utility industry.

13

14 Q5: PLEASE ELABORATE ON YOUR UTILITY PLANNING BACKGROUND.

15 A5: During my senior year and in my master's program in Mechanical Engineering at
16 Rensselaer Polytech, I was a Research Assistant for the Center for Technology
17 Assessment, which is a part of the RPI Nuclear Engineering Department. Our
18 interdisciplinary group did electric generation planning studies for organizations,
19 including the New York State Energy Research and Development Authority
20 (NYSERDA) and the New York State Energy Office. I was personally in charge
21 of modeling the impacts of new technologies such as solar heating and wind
22 turbines upon the New York Power Pool grid. From this work I published two
23 technical papers with IEEE Power Generation Division, and was a contributing

1 author on two others. A modeling technique I developed and published for wind
2 turbines has since been used and credited to me in federal windpower studies. I
3 also did work on New York State's first Energy Masterplan, one of the first
4 comprehensive long-term planning studies in the nation.

5
6 Q6: PLEASE DETAIL YOUR BACKGROUND IN ENERGY CONSERVATION.

7 A6: In 1981, I developed and ran an Energy Conservation Program in the Crown
8 Heights neighborhood in Brooklyn, New York under a Federal energy grant from
9 VISTA. In 1982, I helped run a supervisor-training program for a grass-roots
10 energy conservation program in the Germantown neighborhood of Philadelphia.
11 In 1984, 1985 and 1986, I was a supervisor for Project Warm in Louisville as part
12 of the City of Louisville's Summer Youth Employment Program. I have also
13 designed and supervised workshops to train people in the construction of solar
14 greenhouses and passive solar domestic hot water heating systems. I am also
15 presently serving on the Board of Directors of the Affordable Energy Corporation.
16 This non-profit organization administers a utility assistance program for low-
17 income Louisville Gas and Electric customers.

18

19 Q7: HAVE YOU PREVIOUSLY PRESENTED TESTIMONY BEFORE THIS
20 COMMISSION?

21 A7: Yes, I testified in the following rate cases: Louisville Gas & Electric Co. Case No.
22 90-158, Case No. 10064, and Case No. 9824; Kentucky Power Co. Case No. 91-
23 066; Union Light Heat and Power Co. Case No. 92-346 and Case No. 91-370; Big

1 Rivers Electric Corp. Case No. 9613 and Case No. 97-204; Delta Natural Gas Co.
2 Case No. 97-066; Western Kentucky Gas Co. 95-010; East Kentucky Power
3 Cooperative Case No. 94-336; Clark RECC Case No. 92-219; Jackson Purchase
4 ECC Case No. 97-224; Meade County RECC Case No. 97-209; Green River EC
5 Case No. 97-219, Henderson Union ECC Case No. 97-220, Licking Valley
6 RECC Case No. 98-321, and Grayson RECC Case No. 98-455. I also presented
7 testimony in cases involving each of East Kentucky Power's Cooperatives in the
8 pass-through of rate reductions associated with Case No. 94-336. I also testified
9 in the Commission's reviews of LG&E's Trimble County power plant, Case No.
10 9934 and Case No. 9242, and the rate impact of the 25% disallowance of that
11 project, Case No. 10320. In addition, I presented testimony in the Certificate of
12 Convenience and Necessity cases for Kentucky Utilities, Case No. 91-115 and
13 East Kentucky Power, Case No. 92-112. I have also testified in Fuel Adjustment
14 Clause cases involving Louisville Gas and Electric, Case No. 96-524, and
15 Kentucky Utilities, Case No. 96-523; and in Environmental Surcharge cases
16 involving Kentucky Power, Case No. 96-489; Kentucky Utilities, Case No. 93-
17 465; and Louisville Gas and Electric, Case No. 94-332. Other cases in which I
18 presented testimony include the Kentucky Utilities' Coal Litigation Refund case,
19 Case No. 93-113; the Big Rivers' sale of peaking capacity to Hoosier Energy
20 case, Case No. 93-163; the Joint Application case with LG&E to establish
21 Demand Side Management programs, Case No. 93-150; and the Louisville Gas
22 and Electric and Kentucky Utilities merger case, Case No. 97-300.

1 Q8: WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS CASE?

2 A8: In this case, Louisville Gas and Electric Company (LG&E) and Kentucky Utilities
3 Company (KU) have jointly applied to acquire two 164 MW combustion turbines
4 from LG&E Capital, an unregulated subsidiary of their parent holding company,
5 LG&E Energy. Because these utilities are not building this new generating
6 capacity themselves, this case is more complicated than a typical Certificate of
7 Convenience and Necessity case. My testimony will examine aspects of this
8 proposed sale and make some recommendations to the Commission.

9

10 Q9: WHAT COMPLICATIONS DO YOU SEE IN THIS CASE?

11 A9: The non-conventional approach that the Applicants have taken in this case raises a
12 number of complex issues with which the Commission must deal. The most
13 obvious is the transaction between regulated utilities and unregulated affiliates.
14 The use of the unregulated affiliate appears to be an attempt to avoid the problems
15 that East Kentucky Power Cooperative (EKPC) had in Case No. 92-112. In that
16 case the Commission found "potential for misuse and abuse of the certificate
17 process to be substantial", when EKPC signed contracts with substantial
18 cancellation penalties before coming to the Commission for a certificate.
19 The result was a separate Show Cause proceeding to determine if EKPC had
20 violated KRS 278.020(1). To avoid a similar problem, the Applicants in this case
21 had an unregulated subsidiary purchase and build new capacity, and then come to
22 the Commission for a certificate to purchase the finished generating units.

1 By using this non-conventional approach to avoid the problem EKPC
2 encountered, a number of other problems have been created. A primary problem
3 is caused by the placement of the new units on a site KU had prepared for its own
4 units. If a new or so-called "greenfields" site had been used, there would be few
5 complications associated with the Commission's rejection of the application.
6 Giving such a valuable site to an unregulated affiliate to use for a merchant plant
7 has troubling consequences.

8 In the EKPC case, the utility did an adequate job of documenting that the
9 proposed new units were the lowest cost of all options, including a variety of
10 capacity options from other parties and purchased power. But in this case, the
11 joint Applicants only considered combustion turbines built by themselves or an
12 unregulated affiliate. No alternatives to combustion turbines were considered.
13 Neither did the Applicants consider whether another party could build combustion
14 turbines at a lower cost. The only option considered was to delay the project.

15 Because of the unconventional approach of using an unregulated affiliate
16 to get around the regulations with respect to the certificate process, the placement
17 of the units by the unregulated subsidiary on a very valuable utility site, and the
18 lack of alternatives considered, the Commission has a number of complex and
19 difficult issues to sort out before a decision can be made in this case. The
20 Commission has now been put in the very difficult position of either approving a
21 purchase from an unregulated affiliate at a very high price, when alternatives have
22 not been explored, or rejecting the sale and allowing the unregulated affiliate to

1 take a very valuable site from a regulated utility at a fraction of the cost to replace
2 the site.

3

4 Q10: YOU STATED THAT THE PROPOSED ACQUISITION FROM THE
5 UNREGULATED AFFILIATE WOULD BE AT A VERY HIGH COST.
6 WHAT LEADS YOU TO THIS CONCLUSION?

7 A10: The proposed sale is for 328 Megawatts at a total cost of \$125 million. This
8 works out to a price of \$381 per kilowatt. According to KU's 1996 Integrated
9 Resource Plan (IRP), the cost of installing additional combustion turbines at the
10 partially-built Brown site is \$198 per kilowatt. Exhibit DHBK-1 is a copy of a
11 page from that IRP which shows this price. The sale price proposed in this case is
12 92% higher than the cost included in this most recent IRP. When questioned
13 about this increase in the Informal Conference held at the Commission on April
14 23, 1999, Mr. Bellar stated that the increase was due to two factors.

15 First, he said that the combustion turbines in this case were larger and
16 more efficient than the ones contemplated for the Brown site in the IRP. This
17 price differential is supported by KU's IRP filing. In reviewing the 1996 IRP,
18 two prices were given for Greenfields combustion turbine. Please see Exhibit
19 DHBK-1. The price for the larger more efficient unit, in the size range of the
20 units under consideration in this case, was 10% more expensive on a dollar per
21 kilowatt basis. When this 10% premium for the larger more efficient unit is
22 removed from the 92% price differential, an 82% difference still remains.

1 The second factor Mr. Bellar mentioned was the price increase in
2 combustion turbines associated with transition from a buyer's market to a seller's
3 market in the summer of 1998. The 82% price increase of the project associated
4 with this transition raises a number of difficult questions.

5 The most obvious question is whether the LG&E Capital paid too much
6 for these units? The Applicants have purchased these assets through an
7 unregulated affiliate because using the conventional certificate process would
8 have resulted in the loss of the opportunity to buy these two units. One would
9 expect such unconventional actions to be used to lock-in a special low price offer.
10 Instead, it appears that LG&E Capital was able to lock-in a very high price during
11 a crisis period. Thus, one must ask whether the Applicants are trying to dump
12 overpriced units on the regulated ratepayers.

13 One must also ask whether there are lower cost alternatives, or alternatives
14 that have not been the subject of such rapid price increases as the combustion
15 turbines, that would provide ratepayers with the same capacity at a lower cost?
16

17 Q11: THE APPLICANTS STATE IN THE APPLICATION THAT THEIR
18 ANALYSIS SHOWS THAT THE PROPOSED UNITS ARE THE LOWEST
19 COST CAPACITY OPTION. DO YOU AGREE WITH THIS ANALYSIS?

20 A11: No. While the Applicants claim that their analysis demonstrates that the two new
21 combustion turbines are the lowest cost option, the analysis is primarily based on
22 speculation and a lack of analysis of alternatives. Based on very tenuous

1 assumptions and a very narrow review of alternatives, the proposed units appear
2 justified. But further examination of the analysis reveals serious problems.

3 The units in this case were purchased at a very high price. The purchase
4 by LG&E Capital might be characterized as a crisis purchase. The purchase took
5 place immediately following the summer of 1998 when, due to some capacity
6 shortages during certain hours, the Applicants believe that the power market
7 fundamentally changed. LG&E Capital purchased the only units available from
8 the only supplier that had units available for sale. These are clearly not the most
9 optimum conditions under which to negotiate a good price. The Applicants have
10 correctly characterized this as a seller's market. Under such conditions, it is easy
11 to see why LG&E Capital had to pay such a high price.

12 In light of the purchase conditions and price, the Commission must ask
13 whether the Applicants could have gotten a much better deal had the utilities
14 waited to purchase new generation after the crisis subsides. In Mr. Willhite's
15 testimony, he stated that he expects the price of combustion turbines to continue
16 to rise. But in response to the Attorney General's Information Request, Item 13,
17 Mr. Willhite admitted that this was a general statement and there was no specific
18 projection upon which his statement was based. This type of general statement is
19 reminiscent of the general attitude during the gasoline crisis of the 1970's when
20 the common belief was that gasoline prices would continue to rise in the future.
21 Anyone who would have predicted gasoline to be very cheap and plentiful in the
22 1990's would not have been taken seriously. It is likely that the shortage of

1 combustion turbines will disappear as soon as production catches up with
2 demand. That is the nature of the marketplace.

3 In the same way, this crisis purchase was made on the heels of an hour
4 when power costs hit \$7500 per Megawatt-hour. The Applicants claim that the
5 price spikes of the summer of 1998 fundamentally changed the power market, and
6 they had to respond. I question how fundamentally the power market changed
7 and whether the Applicants needed to respond with a crisis purchase of capacity.

8 While the Applicants state that the power market fundamentally changed
9 in the summer of 1998, it appears that the Applicant were not affected. Even
10 though the Applicants were in a capacity deficient situation and bought power
11 during that period, the prices they paid were not extraordinary high. In response
12 to the Attorney General's Information Request, Item 1(g), the Applicants revealed
13 that the average price they paid during June and July 1998 was between 15.78 and
14 17.13 mills per kilowatt-hour. In response to the Attorney General's Information
15 Request, Item 16, Mr. Kasey shows future prices for power available in the
16 market. This response shows that in future years, summer prices for power are
17 moving downward as the marketplace responds to short-term shortages. While
18 these summer prices are higher than in the past, they are substantially lower than
19 the summer 1998 crisis prices.

20 Even with higher summer market prices, the question becomes how much
21 these higher power costs would affect the Applicants. In response to the Attorney
22 General's Information Request, Item 2, the chart provided shows that two
23 combustion turbines at Brown are expected to have capacity factors under 1% in

1 1999 and two units have capacity factors of 1.1% in 2000. In these years, all of
2 the LG&E combustion turbines are projected to have capacity factors below 1%.
3 These figures indicate that the Applicants would have some capacity available
4 during most hours even without the proposed units, requiring a minimum of off-
5 system purchases. The Applicants felt they had to act immediately in the
6 purchase of very expensive combustion turbines, with an expected life of 30
7 years, in order to avoid higher summer power prices for a few summers until
8 combustion turbines could be bought in a competitive marketplace in which
9 prices are not driven by the recent extreme crisis.

10

11 Q12: DIDN'T THE APPLICANTS' ANALYSIS SHOW THAT IT WAS LESS
12 EXPENSIVE TO INSTALL THE COMBUSTION TURBINES NOW AND
13 AVOID THOSE HIGH POWER COSTS, AS OPPOSED TO WAITING A FEW
14 YEARS?

15 A12: Yes, but the analysis was based on some very questionable assumptions. As I
16 have already explained, while the Applicants have assumed that combustion
17 turbine prices will continue to rise from the crisis prices they paid, they have
18 absolutely no evidence to support this assumption. It is just as likely that prices
19 may moderate somewhat when a number of suppliers have equipment and are
20 able to bid. In addition, the analysis assumes that market power prices would also
21 continue to rise.

22 There are a number of other assumptions in the analysis that are
23 questionable. The Applicants assume that they needed peaking power in the form

1 of combustion turbines. In the Applicants' response to the Attorney General's
2 Information Request, Item 17, Mr. Bellar states that all scenarios considered
3 included combustion turbines since "the most recent IRPs of both companies
4 recommended the installation of simple-cycle combustion turbines". This
5 statement ignores one of the primary reasons the two utilities gave for their
6 merger; that the combined companies with different load profiles could avoid the
7 need for some new generating capacity. With different load profiles, it is unclear
8 that simple-cycle combustion turbines would be needed by the combined
9 company, especially in light of the fact that each company already owns peaking
10 units. This fact is illustrated by the generation expansion plan submitted to the
11 Applicants' management to justify the proposed units. I have included in Exhibit
12 DHBK-2 a copy of this expansion plan, which is found in the response to the
13 Commission's First Information Response, Item 1, Page 6. This plan, dated
14 February 2, 1999, shows that after the two units in this case, the Applicants will
15 add only intermediate combined-cycle units. This brings into question whether
16 the Applicants need peaking or intermediate capacity at this time.

17 Mr. Bellar's response, that previous IRPs had called for simple-cycle
18 combustion turbines justify their use now, also ignores another important change.
19 In the most recent IRP, the 1996 KU IRP, combustion turbines were justified on
20 the low installation cost of \$198 per kilowatt. But the price is now \$381 per
21 kilowatt, 92% higher. The prices from the IRP, contained in Exhibit DHBK-1,
22 indicate that other peaking options, such as battery storage and compressed air
23 storage, are now in a similar price range. It should be noted that while these

1 technologies have similar capital costs to the price paid by LG&E Capital for
2 combustion turbines, these technologies are charged with low-cost off-peak coal-
3 fired power instead of expensive natural gas.

4 In recent years, LG&E has eliminated many Demand Side Management
5 programs based on very low avoided cost. With very low cost power available in
6 the marketplace, LG&E was buying power instead of building new capacity.
7 Now that avoided capacity costs should nearly double with the increase in
8 combustion turbine prices and the increase in purchase power costs, programs
9 such as Direct Load Control should be considered before any new supply side
10 capacity is added.

11 The higher cost of combustion turbines will also make intermediate
12 capacity options that do not include combustion turbines more attractive. For
13 example, the purchase of 103 MW of IPP Hydro capacity is still available and in
14 the price range contained in the 1996 IRP. While the capital cost of this power
15 was \$1157 per kilowatt in the IRP, this option has no fuel cost. Combining the
16 large increase in combustion turbine costs and the need for intermediate capacity
17 illustrated in the Applicants' generation expansion plan, found in Exhibit DHBK-
18 2, it would appear that other options such as the IPP Hydro might now be
19 attractive. But the applicants did not examine any options except for expensive
20 combustion turbines.

21 The Applicants' failure to explore alternatives, combined with the short
22 timeframe, did not allow for anyone to propose alternative. In today's
23 competitive marketplace, independent producers are proposing projects that are

1 competitive with what utilities can build themselves. These projects may offer
2 ratepayers lower cost power. But with the proposed project, independent
3 producers were not given the opportunity to propose alternatives. Going into the
4 summer of 1998, the Applicants had no need for new capacity since they were
5 buying power to cover capacity deficits. By the fall of 1998, the Applicants had
6 already purchased new capacity through an unregulated affiliate. Other parties
7 with lower cost capacity had no opportunity to propose alternatives.

8 Such quick actions in response to a short-term crisis, and a failure to
9 examine alternatives, suggest a lack of thorough planning by the Applicants. It
10 was poor planning by LG&E that led to the construction of the unneeded portions
11 of the Trimble County plant. It was hoped that the problems associated with
12 Trimble County would have led to LG&E improving its planning process. This
13 case brings into question whether any improvements have been made at LG&E's
14 planning department.

15
16 Q13: BASED ON THE INADEQUATE ANALYSIS OF OPTIONS EXPLORED BY
17 THE APPLICANTS, ARE YOU RECOMMENDING THAT THE
18 COMMISSION REJECT THIS APPLICATION?

19 A13: Not necessarily. Because the LG&E Capital units are being placed on the Brown
20 site, there are a number of complications. If the units were sited at a "greenfields"
21 site, the Commission's decision would be much easier.

22 Without the permission of the Commission, KU has allowed an
23 unregulated affiliate to use, and possibly purchase, a very valuable asset. LG&E

1 Capital has placed its two new combustion turbines at the Brown site which was
2 prepared by KU for its own turbines. The site has all of its permits, has gas and
3 electric transmission lines run to the site, and has been prepared for units in
4 addition to the four units already installed by KU. If this turbine-ready site is
5 used by LG&E Capital, it will be very expensive for the Applicants to prepare a
6 new site for their own units.

7 The existence of a prepared and permitted site is very valuable. In
8 response to the Commission's First Information Request, Item 18, Mr. Robinson
9 states that the book value of the site is \$19,416,013 for all eight units. If the two
10 new turbines use 3 of the 8 slots, the units would be charged for 3/8 of the sites
11 book value, or \$7,281,005. LG&E Capital would have to pay KU this or the fair
12 market value of the property, whichever is higher, if the certificate requested is
13 rejected. But Mr. Robinson stated in this response that "the fair market value of
14 the assets is not known". Since the fair market value is unknown, for the
15 purposes of this case we must assume the asset value to be the book value.

16 My concern is that the book value, or even the fair market value, will not
17 adequately compensate KU for the value of its asset. To KU, the important figure
18 is the replacement cost. If this site is used by LG&E Capital for a merchant plant,
19 the Applicants will have to build and outfit a new "greenfields" to replace the site
20 it had previously prepared for its own units. The 1996 KU IRP gives us some
21 idea of the replacement cost for the site. The IRP page copied in Exhibit DHBK-
22 1 shows a difference of \$62 per kilowatt between adding a combustion turbine at
23 the Brown site and adding it at a Greenfield site. Multiplying this \$62 per

1 kilowatt by the 328 Megawatts proposed in this case results in a replacement cost
2 of \$20,336,000. This value is over \$13 million higher than the transfer cost
3 identified by Mr. Robinson.

4 There is an additional cost associated with the loss of the Brown site. The
5 Applicants have stated that the existing employees will be able to operate the two
6 new units. No additional employees will be needed. But if the Applicants place
7 their own new combustion turbines at a "greenfields" site, a new staff of
8 employees would have to be hired for this site. This would increase the
9 operations and maintenance costs that ratepayers would have to pay.

10 It is clear that allowing LG&E Capital to use the Brown site for a
11 merchant plant could be very costly for ratepayers. The Applicants have placed
12 the Commission in the very difficult position of approving the application which
13 contains very expensive capacity and explores no lower cost alternatives, or
14 rejecting it and allowing LG&E Capital to retain the units as a merchant plant at a
15 very high cost to regulated ratepayers.

16
17 Q14: WHAT IS YOUR RECOMMENDATION TO THE COMMISSION WITH
18 RESPECT TO THIS CERTIFICATE OF CONVENIENCE AND NECESSITY
19 APPLICATION?

20 A14: Because of the very high price of these units and the lack of an exploration of
21 alternatives, it is not possible for me to recommend that the Commission issue the
22 requested certificate. And because it appears that ratepayers may be financially
23 penalized if the Brown site is used for a merchant plant, I have a difficult time

1 recommending that the Commission reject this application. Because of this
2 dilemma, I am limiting my recommendations to conditions the Commission
3 should include with whatever action it takes.

4 If this application is rejected, the Commission must make sure that LG&E
5 Capital reimburses KU for the Brown site at the cost of replacing this asset, over
6 \$20 million, which is about three times greater than the book price identified by
7 Mr. Robinson. In addition, operation and maintenance costs must be reimbursed
8 to KU at a rate that it would cost it to place a new staff at a "greenfields" site. It
9 is critical that ratepayers not be financially penalized by the use of KU's assets by
10 an unregulated affiliate.

11 If this unconventional application is approved, the Commission must make
12 sure that ratepayers are not penalized by the Applicants' manipulation of the
13 traditional certificate process. In the traditional certificate application, the
14 applicant receives permission to add capacity before construction begins. At the
15 completion of the project, the plant is put on line and the customers receive power
16 from it. In this case, the units will produce electrical energy before a decision is
17 made in this case. Because of this timing problem, the Applicants will have to
18 apply to the Federal Energy Regulatory Commission (FERC) to become an
19 Exempt Wholesale Generator (EWG). In the informal conference held at the
20 Commission on April 23, 1999, Mr. Robinson stated that the cost of becoming an
21 EWG would be rolled into the price of the plant and included in the sale price.
22 Ratepayers should not have to pay for extra costs associated with the Applicants'
23 failure to follow the proper certificate procedures. All costs associated with the

1 project's EWG status should be kept with LG&E Capital and should not be
2 transferred to the ratepayers.

3 Whichever way the Commission rules in this case, the Commission should
4 let the Applicants know in no uncertain terms that this poor planning, crisis
5 purchasing, and use of unregulated affiliates to circumvent the Commission's
6 certificate procedure is not acceptable and will not be tolerated in the future. In
7 addition, the Commission should reprimand KU for allowing an unregulated
8 affiliate to use and possibly take ownership of the valuable Brown combustion
9 turbine site without the Commission's permission.

10 The Commission should also put the Applicants on notice that in the
11 future, certificates of convenience and necessity will not be considered unless the
12 Applicants have investigated all reasonable alternatives and can well document
13 that the option selected is the lowest cost option for ratepayers.


14

15 Q15: DOES THIS CONCLUDE YOUR TESTIMONY?

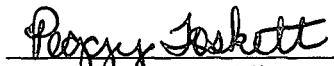
16 A15: Yes it does.

I, David H. Brown Kinloch, certify that the statements contained in the foregoing testimony are true and correct to the best of my knowledge, information, and belief.

Dated this 27th day of April, 1999.


David H. Brown Kinloch

Affirmed to and subscribed
before me, this 27th day
of April, 1999.


Notary Public

My Commission Expires: 9/29/99

KU and LG&E Joint Company Loads, Capabilities, and Reserves

02-Feb-99

Joint Company at 14% Reserve Margin and 0.3% Load Diversity

Year	Season	Generating Capacity (MW)	Purchases (MW)					Net Capacity (MW)	Net Forecast Peak Load (MW)	Reserves (MW)	Reserve (%)	Capacity Margin (%)	Date Addition
			OHV	ELI	CBM	Call	Flng						
1998	S	6131	194	200	110	50	95	6780	5946	834	14.0%	12.3%	
1998/99	W	6202	194	200	110	0	0	6706	5397	1309	24.3%	19.5%	w/o Flng Purch: 12.4%
1999	S	6459	189	200	0	0	140	6988	6132	856	14.0%	12.3%	Brown 7, Brown 6 328 / 362 MW 08/01/99
1999/0	W	6564	189	200	0	0	0	6953	5518	1435	26.0%	20.6%	w/o Flng Purch: 11.7%
2000	S	6459	187	200	0	0	350	7196	6313	883	14.0%	12.3%	
2000/1	W	6564	187	200	0	0	0	6951	5630	1321	23.5%	19.0%	w/o Flng Purch: 8.4%
2001	S	6459	183	200	0	0	485	7327	6427	900	14.0%	12.3%	
2001/2	W	6564	183	200	0	0	0	6947	5752	1195	20.8%	17.2%	w/o Flng Purch: 6.7%
2002	S	6729	177	200	0	0	365	7471	6552	919	14.0%	12.3%	Brown 5, CCPH1 270 / 318 MW 06/01/02
2002/3	W	6882	177	200	0	0	0	7259	5881	1378	23.4%	19.0%	Reserve Margin w/o unit: 9.7% w/o Flng Purch: 8.5%
2003	S	6895	171	200	0	0	360	7626	6689	937	14.0%	12.3%	CCPH2 150 / 180 MW 06/01/03
2003/4	W	7078	171	200	0	0	0	7449	6026	1423	23.6%	19.1%	Reserve Margin w/o unit: 11.8% w/o Flng Purch: 8.6%
2004	S	7195	166	200	0	0	245	7806	6849	957	14.0%	12.3%	HRSO #1, CCPH1 300 / 331 MW 06/01/04
2004/5	W	7409	166	200	0	0	0	7775	6154	1621	26.3%	20.9%	Reserve Margin w/o unit: 9.6% w/o Flng Purch: 18.6%
2005	S	7495	160	200	0	0	120	7975	6995	980	14.0%	12.3%	CCPH2, HRSO #2 300 / 331 MW 06/01/05
2005/6	W	7740	160	200	0	0	0	8100	6274	1826	29.1%	22.5%	Reserve Margin w/o unit: 9.7% w/o Flng Purch: 12.3%
2006	S	7633	153	200	0	0	140	8126	7127	999	14.0%	12.3%	CCPH1 150 / 180 06/01/06
2006/7	W	7908	153	200	0	0	0	8261	6386	1875	29.4%	22.7%	Reserve Margin w/o unit: 11.9% w/o Flng Purch: 12.1%
2007	S	7933	148	200	0	0	0	8281	7258	1023	14.1%	12.4%	CCPH2, HRSO #3 300 / 331 MW 06/01/07
2007/8	W	8239	148	200	0	0	0	8587	6517	2070	31.8%	24.1%	Reserve Margin w/o unit: 18.0% w/o Flng Purch: 14.1%
2008	S	8083	144	200	0	0	0	8427	7391	1036	14.0%	12.3%	CCPH1 150 / 180 MW 06/01/08
2008/9	W	8419	144	200	0	0	0	8763	6652	2111	31.7%	24.1%	Reserve Margin w/o unit: 12.0% w/o Flng Purch: 14.0%
2009	S	8233	140	200	0	0	15	8588	7534	1054	14.0%	12.3%	CCPH2 150 / 180 06/01/09
2009/10	W	8599	140	200	0	0	0	8939	6793	2146	31.6%	24.0%	Reserve Margin w/o unit: 12.0% w/o Flng Purch: 12.8%
2010	S	8383	136	200	0	0	55	8774	7696	1078	14.0%	12.3%	HRSO #4 150 / 151 06/01/10
2010/11	W	8750	136	200	0	0	0	9086	6905	2181	31.6%	24.0%	Reserve Margin w/o unit: 12.1% w/o Flng Purch: 13.3%
2011	S	8683	132	200	0	0	0	9015	7852	1163	14.8%	12.9%	CCPH1, CCPH2 300 / 360 06/01/11
2011/12	W	9110	132	200	0	0	0	9442	7021	2421	34.5%	25.6%	Reserve Margin w/o unit: 11.0% w/o Flng Purch: 14.0%
2012	S	8833	127	200	0	0	0	9160	7970	1190	14.9%	13.0%	HRSO #5 150 / 151 06/01/12
													Reserve Margin w/o unit: 11.1% w/o Flng Purch: 14.9%
												Total Cap Installed 2698 / 3055	

ITEM NO. PSC-1

PAGE 6 OF

WITNESS Willhite

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In Re the:

Application of Louisville Gas & Electric Company)
and Kentucky Utilities Company for a Certificate) Case No. 99-056
of Convenience and Necessity for the Acquisition)
of two 164 Megawatt Combustion Turbines)

CERTIFICATE OF SERVICE AND OF FILING

I hereby certify that this the 29th day of April, 1999, I have filed the original and ten copies of the foregoing with the Kentucky Public Service Commission at 730 Schenkel Lane, Frankfort, Ky., 40601, and that I have served the parties by mailing a copy of same, postage prepaid, to:

RONALD WILHITE
VICE PRESIDENT REGULATORY AFFAIRS
KENTUCKY UTILITIES COMPANY
P O BOX 32010
LOUISVILLE KY 40232

GREG FERGUSON
REGULATORY AFFAIRS COORDINATOR
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1700 CITIZENS PLAZA
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91 Blad 1



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

April 27, 1999

To: All parties of record

RE: Case No. 99-056

We enclose one attested copy of the Commission's Order in
the above case.

Sincerely,

A handwritten signature in cursive script that reads "Stephanie Bell".

Stephanie Bell
Secretary of the Commission

SB/hv
Enclosure

cc: John J. Stauffacher
Sr. Director, Governmental Affairs
Dynergy Inc.

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COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY) CASE NO. 99-056
FOR THE ACQUISITION OF TWO 164)
MEGAWATT COMBUSTION TURBINES)

O R D E R

On April 22, 1999, Dynegy Power Corp. ("Dynegy") filed a motion to intervene alleging that it has a special interest in the application of the Louisville Gas and Electric Company and Kentucky Utilities Company ("Joint Applicants") to acquire two combustion turbines. More specifically, Dynegy claims that it is interested in the impact that these two turbines may have on the ability of the Joint Applicants to provide transmission service to Dynegy for a combustion turbine it has planned for Oldham County, Kentucky. Dynegy's motion further alleges that the two combustion turbines under consideration in this case will impact the transmission capabilities of the Joint Applicants.

Based on the motion and being otherwise sufficiently advised, the Commission finds that Dynegy does not have an interest in the issues in this case sufficient to grant it intervention. The issues in this case, which arise under KRS 278.020(1) and 278.025, involve whether the Joint Applicants have a demand and need for additional generating capacity, whether the combustion turbines proposed herein are reasonable facilities to satisfy that demand and need, and whether there will be any wasteful

duplication. Dynegy's motion does not state that it has an interest in any of these issues.

Further, the Commission recognizes that our jurisdiction over the electric operations of the Joint Applicants extends only to their rates and service, in conjunction with sales for ultimate consumption, i.e., retail sales. These retail sales consist of a bundled package of generation, transmission, and distribution services. Dynegy's purchase of transmission service from the Joint Applicants will be to facilitate Dynegy's sale of electricity from its proposed combustion turbine. The Federal Energy Regulatory Commission ("FERC") has asserted exclusive jurisdiction over the unbundled provision of electric transmission service. Thus, any concerns that Dynegy may have regarding the Joint Applicants' ability to provide unbundled transmission service to a merchant generating plant should be raised at the FERC.

IT IS THEREFORE ORDERED that the motion to intervene of Dynegy is denied.

Done at Frankfort, Kentucky, this 27th day of April, 1999.

By the Commission

ATTEST:


Executive Director

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April 23, 1999

VIA FACSIMILE
AND REGULAR MAIL

Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
P.O. Box 615
Frankfort, KY 40602-0615

RECEIVED
APR 26 1999
PUBLIC SERVICE
COMMISSION

RE: Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines
Case No. 99-056

Dear Ms. Helton:

Please find enclosed and accept for filing the Response of Louisville Gas and Electric Company and Kentucky Utilities Company to the Motion of Dynegy Power Corp. for Intervention. The original and ten copies are enclosed with this letter.

Yours very truly,


Kendrick R. Riggs

KRR/ec

Enclosures

cc: Elizabeth E. Blackford, Esq.
Michael L. Kurtz, Esq.
Donald F. Santa, Jr., Esq.
Ronald L. Willhite
David R. Roth, Assistant General Counsel
John J. Stauffacher, Sr. Director, Governmental Affairs, Dynegy, Inc.

154372.01

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

Original

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR THE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

CASE NO. 99-056

APR 20 1999
PUBLIC SERVICE
COMMISSION

RESPONSE OF LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
TO MOTION OF DYNEGY FOR INTERVENTION

Louisville Gas and Electric Company and Kentucky Utilities Company ("Joint Applicants") respond and object to the Motion for Intervention filed by Dynegy Power Corp. ("Dynegy").

The grounds presented in Dynegy's Motion for Intervention are "just too remote" from the issues in and scope of this proceeding to grant intervention. Inter-County R.E. Coop. Corp. v. Public Service Commission, Ky., 407 S.W.2d 127, 130 (1966). The Commission should exercise its discretionary authority and deny Dnyegy's request to intervene for this reason. See Application of Kentucky Utilities Company for a Certificate of Public Convenience and Necessity To Construct A 110 Megawatt Combustion Turbine Generating Unit, Case No. 93-474, Order (April 15, 1994).

Dynegy's motion also does not comply with the Commission's Order of June 15, 1981 in *In the Matter of: Practice Before The Commission By Attorneys Non-Licensed In The Commonwealth of Kentucky*, Administrative Case No. 249. That Order requires "that any attorney who is not licensed to practice law in the State of Kentucky and who seeks to represent a client or employer before this Commission, must engage a member of the Kentucky Bar

Association as co-counsel. Said co-counsel must appear with the non-resident attorney in any proceeding before this Commission.”

WHEREFORE, Joint Applicants respectfully request that the Commission enter an order denying Dynege’s Motion for Intervention.

Respectfully submitted,



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202
502/582-1601

John R. McCall
Executive Vice President
General Counsel
Corporate Secretary

Douglas M. Brooks
Senior Counsel Specialist, Regulatory

Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE


I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 23rd day of April, 1999.

Elizabeth E. Blackford, Esq.
Assistant Attorney General
Office of Rate Intervention
1024 Capital Center Drive
Frankfort, KY 40601

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202

David R. Roth, Esq.
Assistant General Counsel
Dynergy Power Corp.
1000 Louisiana Street, Suite 5800
Houston, TX 77002

John J. Stauffacher
Sr. Director, Governmental Affairs
Dynergy, Inc.
1000 Louisiana Street, Suite 5800
Houston, TX 77002-5050


Counsel for Louisville Gas and
Electric Company and
Kentucky Utilities Company



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KENTUCKY 40602

www.psc.state.ky.us
(502) 564-3940

April 26, 1999

Kendrick Riggs
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville KY, 40202

RE: Petition for Confidential Protection
Case No. 99-056

Dear Mr. Riggs,

The Commission has received the petition filed April 13, 1999, on behalf of Louisville Gas and Electric Company and Kentucky Utilities Company, to protect as confidential the estimated annual increases in fuel costs filed in response to Item 24 of the Attorney General's data requests. A review of the information has determined that it is entitled to the protection requested on the grounds relied upon in the petition and it shall be withheld from public inspection.

If the information becomes publicly available or no longer warrants confidential treatment, you are required by 807 KAR 5:001, Section 7(9)(a) to inform the Commission so that the information may be placed in the public record.

Sincerely,

A handwritten signature in black ink, appearing to read "Helen C. Helton".

Helen C. Helton
Executive Director

cc: All parties of record.

Dynegy Power Corp.
1000 Louisiana Street, Suite 5800
Houston, Texas 77002
Phone 713.507.6400
www.dynegy.com

RECEIVED

APR 22 1999

PUBLIC SERVICE
COMMISSION

DYNEGY

April 21, 1999

Via Federal Express

Hon. Helen Helton
Executive Director
Kentucky Public Service Commission
730 Schenkel Lane
Frankfort, KY 40601

RE: In the Matter of: Application of Louisville Gas & Electric Company and
Kentucky Utilities Company for a Certificate of Public Convenience and
Necessity for the Acquisition of Two 164 Megawatt Combustion
Turbines, Case No. 99-056

Dear Ms. Helton:

Enclosed for filing in the above cause are the original and ten copies of the
Petition to Intervene of Dynegy Power Corp. By copy of this letter, all parties listed on
the Certificate of Service have been served.

Thank you for your assistance.

Sincerely,



David R. Roth
Assistant General Counsel

Enclosures
cc: Certificate of Service

RECEIVED

APR 22 1999

PUBLIC SERVICE
COMMISSION

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

In the Matter Of: Application of Louisville Gas & Electric Company:)
and Kentucky Utilities Company for Certificate of Public)
Convenience and Necessity for the Acquisition of Two 164)
Megawatt Combustion Turbines)

Case No. 99-056

**PETITION TO INTERVENE OF
DYNEGY POWER CORP.**

Pursuant to K.R.S. §278.310 and 807 KAR 5:001 Section 3(8), Dynegy Power Corp. (Dynegy Power), a Delaware corporation, requests that it be granted full intervenor status in the above captioned proceeding.

I.

Correspondence and communications concerning this filing should be directed to:

John J. Stauffacher
Sr. Director, Governmental Affairs
Dynegy Inc.
1000 Louisiana, Suite 5800
Houston, Texas 77002-5050
(713) 767-8051
email: jjst@dynegy.com

**II.
BACKGROUND**

Dynegy Power is an independent power producer, with interests, through special purpose corporations or subsidiaries, in 31 power generating facilities in the United States, with a significant concentration of facilities located in California and Texas. Dynegy Power is a wholly-owned

subsidiary of Dynegey Inc. (Dynegey), which is also a Delaware corporation. Dynegey has subsidiaries involved in the gathering, processing and marketing of natural gas, natural gas liquids and crude oil, as well as the generation and marketing of electric power.

Sixteen of the generating facilities owned directly or indirectly by Dynegey Power are "qualifying facilities" (QFs) pursuant to the Public Utility Regulatory Policies Act of 1978 (PURPA) with the balance of the facilities being Exempt Wholesale Generators (EWGs) which sell electricity at wholesale under authority granted by the Federal Energy Regulatory Commission (FERC). Dynegey Power is currently in the process of developing a merchant power facility in Oldham County, Kentucky.

III.

The position of Dynegey Power cannot be adequately represented by any existing party. Dynegey's interest in this proceeding centers on the impact the proposed LG&E facility will have on LG&E's ability to provide transmission service to Dynegey's proposed natural gas power plant in Oldham County, Kentucky. Information provided Dynegey as part of LG&E's reply regarding a System Impact Study which was prepared after Dynegey made a formal request for transmission service indicates the E. W. Brown additions will impact the transmission capabilities of the LG&E/KU system. Dynegey intends to play a constructive role in the Commission's decision-making process herein and Dynegey's participation will not unduly prejudice any party.

WHEREFORE, Dynegy Power requests that it be granted full intervenor status in the above captioned proceeding.

Respectfully submitted,



David R. Roth
Attorney for Dynegy Power Corp.

Certificate of Service

I hereby certify that a copy of the foregoing was served by mailing a true and correct copy, by regular U.S. Mail (unless otherwise noted) to all parties on this 21st day of April, 1999.

Hon. Elizabeth E. Blackford
Utility & Rate Intervention Division
1024 Capital Holding Center Dr.
Suite 200
Frankfort, KY 40601

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 BCLD Center, 36 East Seventh St.
Cincinnati, Ohio 45202

Hon. Kendrick Riggs
Ogden Newell & Welch
1700 Citizens Plaza
500 W. Jefferson Street
Louisville, KY 40202-2874

Hon. Douglas M. Brooks
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40202

Mr. Ronald L. Wilhite
Vice President of Regulatory Affairs
Kentucky Utilities Company
220 West Main Street
Louisville, KY 40202

OGDEN NEWELL & WELCH

RICHARD F. NEWELL
JOHN T. BALLANTINE
JOSEPH C. OLDHAM
JAMES L. COORSSEN*
STEPHEN F. SCHUSTER
JOHN G. TREITZ, JR.
WALTER LAPP SALES
ERNEST W. WILLIAMS
SCOTT W. BRINKMAN
W. GREGORY KING
KENDRICK R. RIGGS†
JAMES B. MARTIN, JR.

LISA ANN VOGT
TURNER P. BERRY
JOHN WADE HENDRICKS
LYNN H. WANGERIN
DOUGLAS C. BALLANTINE
THOMAS E. RUTLEDGE††
THOMAS M. WILLIAMS**
SHARON A. MATTINGLY
LAUREN ANDERSON
GENE LYNN HUMPHREYS
ANTHONY L. SCHNELL
ALLYSON K. STURGEON

1700 CITIZENS PLAZA
500 WEST JEFFERSON STREET
LOUISVILLE, KENTUCKY 40202-2874
(502) 582-1601
FAX: (502) 581-9564

MOLLY HYLAND WOLFRAM
TIMOTHY J. EIFLER
KELLY S. HENRY
J. GREGORY CORNETT
MELONY J. LANE
ROBERT W. ADAMS III**
MAUREEN M. CARR ††
E. PATRICK MULVIHILL
JOSEPH A. KIRWAN
CHRISTY A. AMES
OF COUNSEL
JAMES S. WELCH
JOHN S. GREENEBAUM PSC
GREGORY J. BUBALO**
ROBERT E. THIEMAN
ENOCH M. POON
SQUIRE R. OGDEN
1899-1984
ALSO ADMITTED:
*FLORIDA
**INDIANA
†VIRGINIA
††DISTRICT OF COLUMBIA
□OHIO

April 19, 1999

Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
P.O. Box 615
Frankfort, KY 40602-0615

RECEIVED

APR 19 1999

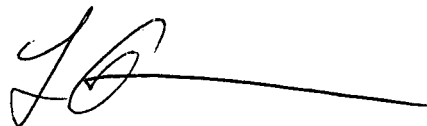
PUBLIC SERVICE
COMMISSION

**RE: In the Matter of: APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE ACQUISITION OF TWO 164 MEGAWATT COMBUSTION TURBINES
Case No. 99-056**

Dear Ms. Helton:

Please find enclosed and accept for filing the original and six copies of LG&E's and KU's Responses to the Commission's Order of April 9, 1999. Also enclosed is a Petition for Confidential Protection of certain information provided in response to the Order. A copy of this information is provided under seal marked Confidential and Proprietary. Please place the confidential documents in a secure file and protect their contents from public disclosure pending a ruling on the Petition for Confidential Protection.

Sincerely,



Lauren Anderson
Attorney

cc: Parties of Record

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED
APR 19 1999
PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. 99-056
AND NECESSITY FOR THE RESOURCE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

PETITION OF LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
FOR CONFIDENTIAL PROTECTION

Pursuant to 807 KAR 5:001 Section 7, Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU) (collectively the Companies) petition the Public Service Commission (the Commission) to grant confidential protection to certain information contained in the Responses to the Commission's Order of April 9, 1999. In support of this Petition, the Companies state as follows:

1. Question 9 of the Commission's Order requests a present worth analysis of each proposal received in response to a request for purchased power (RFPP) issued February 10, 1999. The table attached to the Response to Question 9 presents a Net Present Value Analysis of the proposals received.

2. As stated in a Petition for Confidential Protection filed on April 1, 1999, each company that responded to the RFPP designated its response as confidential. The Companies' failure to maintain these responses as confidential would compromise their ability to obtain responses to any future requests for proposals or RFPPs.

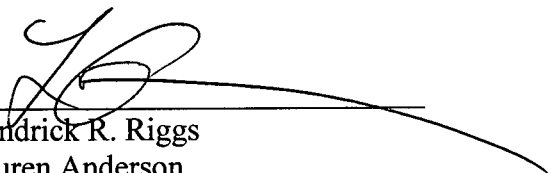
3. Pursuant to KRS 61.878(1)(c), records confidentially disclosed to an agency which are generally recognized as confidential or proprietary in nature are exempt from public inspection. The information described above constitutes confidential proprietary information, the disclosure of which would provide an unfair commercial advantage to wholesale power vendors from whom the Companies may solicit bids in the future.

4. The Companies do not object to disclosure of the confidential information, pursuant to a protective agreement, to the Attorney General or other intervenors with a legitimate interest in reviewing the confidential information for the purpose of intervening in this case.

5. In accordance with 807 KAR 5:001 Section 7, one copy of the Companies' Responses with the confidential information highlighted and ^{S/K DKW} ~~ten~~ copies of the Responses with the confidential information obscured is being filed with the Commission.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company respectfully request that the Commission grant confidential protection to the information designated as confidential for a period of five years from the date of the filing of this application, or in the alternative, schedule an evidentiary hearing on all factual issues.

Respectfully submitted,



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202
502/582-1601

John R. McCall
Executive Vice President
General Counsel

Corporate Secretary
Douglas M. Brooks
Senior Counsel Specialist,
Regulatory

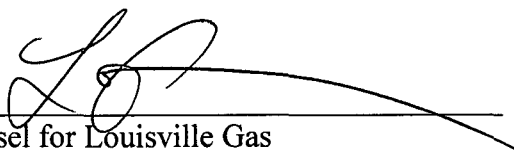
Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 19th day of April, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202



Counsel for Louisville Gas
and Electric Company and
Kentucky Utilities Company



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

April 19, 1999

To: All parties of record

RE: Case No. 99-056

We enclose one attested copy of the Commission's Order in
the above case.

Sincerely,

Stephanie J. Bell
Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
Louisville, KY 40232 2010

Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, KY 40202

Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Franfort, KY 40601

Honorable Michael L. Kurtz
Counsel for KIUC
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY) CASE NO. 99-056
FOR THE ACQUISITION OF TWO 164)
MEGAWATT COMBUSTION TURBINES)

O R D E R

The Commission, having considered the request of Louisville Gas and Electric Company and Kentucky Utilities Company for an informal conference and good cause having been shown, HEREBY ORDERS that an informal conference shall be held on April 23, 1999, at 10:00 a.m., Eastern Daylight Time, in Conference Room 1 of the Commission's offices at 730 Schenkel Lane, Frankfort, Kentucky.

Done at Frankfort, Kentucky, this 19th day of April, 1999.

By the Commission

ATTEST:


Executive Director

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED
APR 15 1999
PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. 99-056
AND NECESSITY FOR THE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

MOTION OF LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
FOR AN INFORMAL CONFERENCE

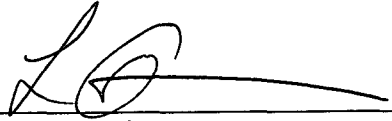
Pursuant to 807 KAR 5:001 § 4(4), Louisville Gas and Electric Company and Kentucky Utilities Company (collectively the "Movants"), by counsel, move the Public Service Commission (the "Commission") to schedule an informal conference with the parties of record to the above-referenced case. The purpose of the conference will be to discuss the following matters:

- Status of construction of the combustion turbines;
- Environmental permits;
- The need to conduct performance testing of the combustion turbines in May 1999, for a start-up date of July 1, 1999.

The Movants request that the conference be set for the afternoon of Friday, April 23, 1999, at the Commission's offices.

WHEREFORE, Movants respectfully request that the Commission schedule an informal conference with the parties of record for April 23, 1999.

Respectfully submitted,



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202
502/582-1601

John R. McCall
Executive Vice President
General Counsel
Corporate Secretary

Douglas M. Brooks
Senior Counsel Specialist, Regulatory

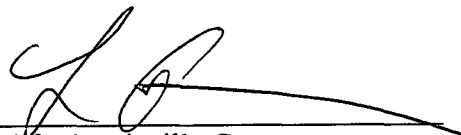
Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 15th day of April, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202



Counsel for Louisville Gas
and Electric Company and
Kentucky Utilities Company



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
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FRANKFORT, KENTUCKY 40602
www.psc.state.ky.us
(502) 564-3940
April 15, 1999

Kendrick Riggs
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville KY, 40202

RE: Petition for Confidential Protection
Case No. 99-056

Dear Mr. Riggs,

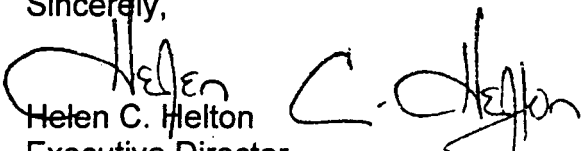
The Commission has received the petition filed April 1, 1999, on behalf of Louisville Gas and Electric Company and Kentucky Utilities Company, to protect as confidential their contract with Asea Brown Boveri Company (ABB) filed in response to Item 17 of the Commission's data requests, and copies of their requests for purchased power (RFPPs) filed in response to Item 23 of the same data requests. The companies contend that the information is entitled to confidential protection by KRS 61.878(1)(c).

As grounds for protection of the contract, the companies state that public disclosure would injure ABB and benefit its competitors by revealing trade secrets contained in the contract. As grounds for protection of the RFPPs, the companies state that each company that responded to the requests designated its response as confidential and that failure to maintain them as such would compromise their ability to obtain responses in the future.

To qualify for the exemption on the grounds relied upon, the Commission requires the petition identify the competitors who would derive benefit from the information sought to be protected, and demonstrate how the information could be used by those competitors to the detriment of the petitioner or the source from whom the information was obtained. The petition filed by Louisville Gas and Electric Company and Kentucky Utilities Company does not satisfy this requirement and, therefore, must be denied.

The information shall be held and retained by the Commission for a period of 20 days to allow the companies to file an amended petition or request a hearing. If an amended petition or a request for hearing is not filed within 20 days the information will be placed in the public file.

Sincerely,


Helen C. Helton
Executive Director

cc: All parties of record.



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

April 9, 1999

To: All parties of record

RE: Case No. 99-056

We enclose one attested copy of the Commission's Order in
the above case.

Sincerely,

A handwritten signature in cursive script that reads "Stephanie J. Bell".

Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
Louisville, KY 40232 2010

Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, KY 40202

Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Franfort, KY 40601

Honorable Michael L. Kurtz
Counsel for KIUC
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY) CASE NO. 99-056
FOR THE ACQUISITION OF TWO 164)
MEGAWATT COMBUSTION TURBINES)

O R D E R

IT IS ORDERED that Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU") shall file the original and 6 copies of the following information with the Commission, with a copy to all parties of record no later than April 19, 1999. Each copy of the data requested should be placed in a bound volume with each item tabbed. When a number of sheets are required for an item, each sheet should be appropriately indexed, for example, Item 1(a), Sheet 2 of 6. Include with each response the name of the witness who will be responsible for responding to questions relating to the information provided. Careful attention should be given to copied material to ensure that it is legible. Where information requested herein has been provided along with the original application, in the format requested herein, reference may be made to the specific location of said information in responding to this information request. When applicable, the information requested herein should be provided for total company operations and jurisdictional operations, separately.

1. Refer to the response to the Commission's March 16 and 19, 1999 Orders, Item 4.

a. Is it correct that there are no memorandum of understanding or other written documents concerning the construction by LG&E Capital Corp. of two combustion turbines ("CTs") on property owned by KU? If no, provide copies of the documentation.

b. Is KU following good business practices by allowing LG&E Capital Corp. to construct an asset on KU's property without some governing document or agreement? Explain the response.

c. Since the construction site for the CTs has not been transferred, deeded, or leased to LG&E Capital Corp., explain in detail how this arrangement does not constitute a subsidization of LG&E Capital Corp. operations by KU.

2. Refer to the response to the Commission's March 16 and 19, 1999 Orders, Item 15.

a. KU and LG&E were requested to provide the expected levels of emissions and the expected levels of effluent discharges for the two 164 megawatt CTs, for the units alone and for the entire site at the Brown station upon the new CTs becoming operational. The response did not quantify the expected levels of emissions or effluent discharges. The request was seeking a quantification of these levels. With this clarification, provide the information originally requested.

b. When did KU begin its discussions with the Kentucky Division of Water concerning its Kentucky Pollutant Discharge Elimination System ("KPDES") permit? Did these discussions begin prior to the start of the CT construction?

c. Provide copies of the application and all supporting documentation submitted to the Kentucky Division of Water concerning the modification of the existing

KPDES permit. Any documents filed in conjunction with this modification after the response date to this Order, as well as the Kentucky Division of Water's ruling on the request to modify, should be filed in the record of this proceeding as a supplemental response to this data request item.

d. Is KU bearing the full cost of seeking this permit modification? Depending on the Commission's decision, will either LG&E or LG&E Capital Corp. reimburse KU for this expense?

3. Refer to the response to the Commission's March 16 and 19, 1999 Orders, Item 16. When did the construction actually begin on the two CTs?

4. Refer to the response to the Commission's March 16 and 19, 1999 Orders, Item 16(b). Included in the response is the statement, "The two new CTs represent Phases IV (April 1998) and V (April 1999) and thus construction must commence by October 1999 and October 2000, respectively."

a. Given this statement, explain in detail how the 18-month requirement contained in the air quality permit is applicable when construction of the Phase V CT appears to have begun prior to April 1999.

b. Provide copies of any interpretations by the Kentucky Division of Air Quality which support the position that the actual construction of the Phase V CT could commence prior to the date listed in the phased construction schedule of the air quality permit.

c. Based on the information provided in this proceeding by LG&E and KU, explain why KU is not in violation of the phased construction schedule contained in its air quality permit for the Brown station.

5. Refer to the response to the Commission's March 16 and 19, 1999 Orders, Item 18(d). Explain in detail how the decision to not allocate any of the incurred work order costs to date to LG&E Capital Corp. does not constitute the subsidization of LG&E Capital Corp. operations by KU.

6. Refer to the response to the Commission's March 16 and 19, 1999 Orders, Item 19. The response includes the statement, "The cost of the CTs at the time of the transfer will be less than the fair market value."

a. Has KU or LG&E determined the fair market value of the CTs? If yes, provide the fair market value and explain in detail how the amount was determined.

b. If the fair market value of the CTs has not been determined, explain in detail how KU and LG&E have reached the conclusion that the cost of the CTs at the time of transfer will be less than fair market value.

7. Refer to the response to the Commission's March 16 and 19, 1999 Orders, Item 20(b). KU was requested to provide a listing of the expenses it would incur to operate and maintain the CTs and explain how it would allocate those expenses to LG&E. While the allocation approach was provided, no listing of the operating and maintenance expenses was provided. Provide the originally requested information.

8. Refer to the Amended Application filed on April 1, 1999, Exhibit A, the "Description of the Proposed Facility – Combustion Turbine Specifications." For each of the specifications listed below, provide the actual specifications of the CTs installed at the Brown station.

a. Each CT will have a nominal output rating of 75 to 100 megawatts.

b. The heat input to each CT for these nominal ratings will be in the range of 900 to 1200 million BTU per hour.

c. Number two distillate fuel oil will be the primary fuel.

d. Number two distillate fuel oil will be stored at the site in sufficient quantities to assure an adequate supply to fuel the CTs.

e. At least two of the CTs will have fast start capability.

f. The exhaust gas generated by each CT will be in excess of 1 million cubic feet per minute and at a temperature of approximately 950 degrees Fahrenheit.

g. The commercial operating date of the first CT is scheduled to be the summer of 1994, with three more units in the summer of 1995.

h. KU's load forecast predicts the addition of three more CTs, one unit each in the summers of 1996, 1997, and 1998.

9. Refer to the response to the Commission's March 16 and 19, 1999 Orders, Item 23(c), page 2 of 6. You indicated that one of the reasons for rejecting all of the proposals to sell power was that each proposal was more costly than the actively traded market.

a. Provide a present worth analysis of each proposal received.

b. Provide a present worth analysis of the two proposed combustion turbines.

c. Explain how the CTs were the least cost. Provide all supporting calculations.

10. Refer to the page entitled Request for Proposals filed on April 1, 1999.

a. Will your need for power be limited to the months of June, July, and August for the years 1999 through 2002?

b. How many hours are each of the CTs projected to operate in each year from 1999 through 2002?

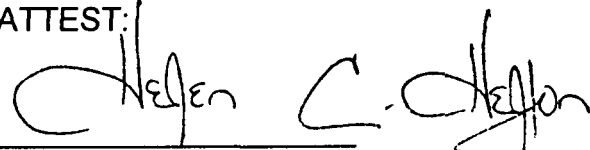
c. Will your need for the proposed CTs be limited to June, July, and August for the years 1999 through 2002?

d. The RFP stated that the desired energy strike price is \$150/MWH. Explain how this number was derived.

Done at Frankfort, Kentucky, this 9th day of April, 1999.

By the Commission

ATTEST:



Executive Director

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In Re the:

Application of Louisville Gas & Electric Company)
and Kentucky Utilities Company for a Certificate) Case No. 99-056
of Convenience and Necessity for the Acquisition)
of two 164 Megawatt Combustion Turbines)

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COMMISSION

**REQUESTS FOR INFORMATION
PROPOUNDED BY THE ATTORNEY GENERAL**

Comes now the intervenor, the Attorney General of the Commonwealth of Kentucky, by and through his Office for Rate Intervention, and submits these Requests for Information to Louisville Gas and Electric Company (hereinafter LG&E) and to Kentucky Utilities Company (hereinafter KU), to be answered by the date specified in the Commission's Order of Procedure, and in accord with the following:

- (1) In each case where a request seeks data provided in response to a staff request, reference to the appropriate request item will be deemed a satisfactory response.
- (2) Please identify the company witness who will be prepared to answer questions concerning each request.
- (3) These requests shall be deemed continuing so as to require further and supplemental responses if the company receives or generates additional information within the scope of these requests between the time of the response and the time of any hearing conducted hereon.
- (4) If any request appears confusing, please request clarification directly from the Office of Attorney General.
- (5) To the extent that the specific document, workpaper or information as requested does not exist, but a similar document, workpaper or information does exist, provide the similar document, workpaper, or information.

(6) To the extent that any request may be answered by way of a computer printout, please identify each variable contained in the printout which would not be self evident to a person not familiar with the printout.

(7) If the company has objections to any request on the grounds that the requested information is proprietary in nature, or for any other reason, please notify the Office of the Attorney General as soon as possible.

(8) For any document withheld on the basis of privilege, state the following: date; author; addressee; indicated or blind copies; all persons to whom distributed, shown, or explained; and, the nature and legal basis for the privilege asserted.

(9) In the event any document called for has been destroyed or transferred beyond the control of the company state: the identity of the person by whom it was destroyed or transferred, and the person authorizing the destruction or transfer; the time, place, and method of destruction or transfer; and, the reason(s) for its destruction or transfer. If destroyed or disposed of by operation of a retention policy, state the retention policy.

Respectfully Submitted,



ELIZABETH E. BLACKFORD
ASSISTANT ATTORNEY GENERAL
1024 CAPITAL CENTER DRIVE
FRANKFORT KY 40601
(502) 696-5453
FAX: (502) 573-4814

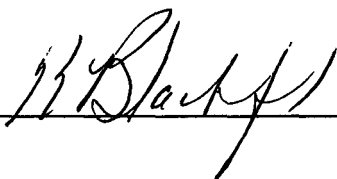
CERTIFICATE OF SERVICE AND OF FILING

I hereby certify that this the 1st day of April, 1999, I have filed the original and ten copies of the foregoing with the Kentucky Public Service Commission at 730 Schenkel Lane, Frankfort, Ky., 40601, and that I have served the parties by mailing a copy of same, postage prepaid, to:

RONALD WILHITE
VICE PRESIDENT REGULATORY AFFAIRS
KENTUCKY UTILITIES COMPANY
P O BOX 32010
LOUISVILLE KY 40232

GREG FERGUSON
REGULATORY AFFAIRS COORDINATOR
LOUISVILLE GAS AND ELECTRIC COMPANY
P O BOX 32010
LOUISVILLE KY 40232 2010

KENDRICK R RIGGS
ALLYSON STURGEON
LAUREN ANDERSON
OGDEN NEWELL & WELCH
1700 CITIZENS PLAZA
500 WEST JEFFERSON STREET
LOUISVILLE KY 40202



1. In the cover letter of the application addressed to Ms. Helton, on page 2, Mr. Willhite states average monthly power prices for summer months in the Midwest. With respect to those prices, please provide the following:

- a. Are these prices spot prices or contract sales prices?
- b. Are these prices on-peak, off-peak or an average of all prices during the month?
- c. Are the prices for power delivered to Cinergy, if not, what is the delivery point?
- d. What is the source of these figures?
- e. Please provide a similar average Midwest power price for each month of the last 5 years.
- f. Please provide all calculations used to develop these figures.
- g. How much power and at what price was power purchased by each of the two Applicants during June and July of 1998.

2. In the application on page 6, it is stated that the new CTs are expected to have an annual capacity factor of 3.4% to 5.3% for the next 5 years. With respect to these figures, please provide the following:

- a. Please provide the projected capacity factor for each of the two new CTs for each of the first 20 years of their use.
- b. Please provide the projected capacity factors for KU and LG&E's existing units for the first 20 years of the new CTs' use.
- c. For an average projected year, please provide the projected load factors for each month of the year.

3. The Joint Applicants propose to purchase two CTs from ABB. The CTs already at the Brown site were built by ABB. During the start-up of these existing CTs, one experienced a major failure that resulted in a lengthy shutdown period and extensive repairs. With this in mind:

- a. Why have the applicants purchased additional units from a company that had previously supplied defective equipment?

b. Please describe in detail what compensation KU received from ABB for the power that could not be produced while the CTs were off-line for repairs.

c. Has KU experienced any other problems with these CTs since this major failure? If so, please describe in detail.

d. Based on the understanding that the two new CTs that are being installed are a new model and considering the problems commonly experienced by new designs of equipment, what provisions have the applicants taken to recover the cost of lost power production if these machines experience a major failure like the last CTs KU purchased from ABB? Will there be recourse against either or both of LG&E Capital and ABB? If so, what is it?

4. Please provide a detailed description of all compensation LG&E Capital will receive if this transaction goes through, including but not limited to financing costs during construction. At what interest rate is the project being financed during construction?

5. Exhibit 2 of the Application contains the Air Permit for the Brown Site combustion turbines. On page 1 of 4, the permit lists a condition of a maximum heat input of 1368 mm/BTU per unit. The new units being built are for 181 MW (winter) with a heat rate of 10,500 BTU/kwh, for a projected heat input of 1900 mm/BTU. This appears to be in violation of the Air Permit. What actions have or will the applicant take to rectify this permit violation?

6. The proposed CTs have a projected full load heat rate of 10,500 BTU/Kwh. Please provide their projected average heat rate at the projected average capacity factor of 4.2% for the first 5 years.

7. Exhibit 3a of the Application contains the General Conditions of Sale of the CTs by ABB. Please also provide the actual contract that contains the sale prices and delivery dates.

8. In the Application, Exhibit 4, contains a Site Map. The Site Map contains a drawing for 7 units instead of the 8 units originally proposed. Please provide an explanation of why the plans for an eighth unit have been abandoned.

9. A gas pipeline was built to provide natural gas for the first 3 CT units at the Brown site. Is the pipeline sized sufficiently to supply the two new units being built, or will an additional gas pipeline have to be added?

10. On page 9 of Mr. Willhite's testimony, he states that the results of a new RFP will be available in March. Please provide a copy of the RFP and the result of the RFP, including all analysis that lead to any conclusion of the results.

11. Please provide a list of combustion turbines available for purchase today, including manufacturer, size, price, full load heat rate and delivery dates.

12. When LG&E Capital undertook this project last year, was it with the intention to use the CTs as a merchant plant, or was the original intent to eventually sell the units to the Applicants. If the original intent was to sell them to the Applicants, please state why the Applicants did not simply make the purchase.

13. On page 11 of his testimony, Mr. Willhite states that the "price of combustion turbines is expected to continue to rise". With respect to this statement:

- a. Please provide all documentation to support this statement.
- b. Please provide a projection of future CT prices that are the basis of this statement.

14. Please provide the energy and load forecast summarized in Exhibit HBS-1 and 2.

15. Please provide the combined LG&E/KU annual sales and summer peak load for each of the last 15 years.

16. On page 9 of his testimony, Mr. Kasey provides January and February forward prices for the summer of 1999. Please provide the present forward prices for future months for power as far into the future as prices are available. For these prices please provide details of the type of power (ex. on-peak 5x16).

17. With respect to Exhibit LEB-2, the Resource Assessment, please provide the following:

- a. All scenarios examined investigated the purchase of 2 CTs, with only the timing of the additions varied. Please explain in detail why the addition of simple-cycle CTs was the only option examined.
- b. Please provide all studies that suggest that the joint company needs to add peaking units instead of intermediate capacity.

c. If scenarios that included delayed CT installation were examined, why weren't other options with short lead times examined, such as Direct Load Control, Hydro, Compressed Air Energy Storage, and Inlet Air Cooling for existing combustion turbines.

18. On page 6 of Exhibit LEB-2, the Resource Assessment, Table 1 lists the Expansion Plans for the two Applicants. Please provide a detailed explanation of why the LG&E 1993 IRP Expansion Plan summary in the Resource Assessment is incomplete and fails to list the Direct Load Control additions, the Hydro upgrade, and the Standby generation called for in the 1993 IRP. Why weren't these options, which were found to be economical in the IRP, ignored by the present Resource Assessment.

19. Based of the current Resource Assessment and the proposal to add to CTs, please provide an update of each Applicants avoided costs to be used in DSM cost benefit tests.

20. Has LG&E informed its DSM collaborative that capacity costs have increased substantially and that DSM programs that previously were not cost effective may now be cost effective?

21. Attachment 2 on page 19 of the Resource Assessment shows the Planned Reserve Margins for ECAR. With respect to this chart:

a. When did the Applicants become aware of this situation developing in the ECAR region?

b. If you had knowledge that the capacity surplus in this region was being used up, and that prices for power would increase correspondingly, why didn't the Applicants begin this project to add two CTs before the crisis of 1998, when CT prices increased substantially?

22. With respect to the Resource Assessment, Appendix A, Tables 1 and 2 on pages 5 and 6 of 10:

a. Please explain exactly what these prices are (example: projected actual average prices of power delivered to Cinergy)

b. Please provide the source of these figures, including all calculations, formulas, assumptions and workpapers used to generate these figures.

c. Please explain in detail exactly where and how the resource planning model uses these tables.

23. With respect to the Resource Assessment, Appendix A, Tables 3 on pages 8 of 10, why was the Falls of the Ohio plant excluded. Was the Falls of the Ohio plant excluded from the planning model? If so why was it excluded?

24. In the application on page 6, it is stated that the fuel costs for the new CTs are expected to rise on average at an annual rate of 4.9% for gas and 5.6% for oil. Does the resource model project the increase in fuel cost to be the same in each future year? If not, please provide the estimated annual increase in price for each year of the planning period?

25. Exhibit 2 to the application includes various permits in the name of KU which support the Companies position that they have the necessary permits for the installation of the two CTs . Those permits are held solely in the name of KU.

a. Please explain the process by which LG&E Capital Corp. is entitled to the use of permits granted to KU for the building and operation of its CTs.. Are these permits transferrable in part? If so, on what basis, and by what means?

b. What has LG&E Capital Corp. paid to KU for the benefit of the permits? Please supply all supporting paperwork.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE RESOURCE ACQUISITION OF TWO 164 MEGAWATT COMBUSTION TURBINES)
)
) **CASE NO. 99-056**
)
)

PETITION OF LOUISVILLE GAS AND ELECTRIC COMPANY AND KENTUCKY UTILITIES COMPANY FOR CONFIDENTIAL PROTECTION

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PUBLIC SERVICE COMMISSION

Pursuant to 807 KAR 5:001 Section 7, Louisville Gas and Electric Company and Kentucky Utilities Company (collectively the "Companies") petition the Public Service Commission (the "Commission") to grant confidential protection to certain information contained in the Companies' Responses to Data Requests issued by the Commission on March 16 and 19, 1999. In support of this Petition, the Companies state as follows:

1. Question 17 of the Commission's Data Request directs the Companies to provide copies of the complete contract (the "Contract") between LG&E Capital Corp. and Asea Brown Boveri (ABB), the combustion turbine vendor.

2. The Contract contains information provided by ABB which that company has designated as confidential and proprietary. This information contains trade secrets of ABB, disclosure of which would provide an unfair advantage to ABB's competitors. Failure to treat this information as confidential would negatively impact future business transactions between ABB and LG&E Capital Corp., LG&E Energy Corp. or the Companies.

3. The Contract also contains confidential information which would provide an unfair commercial advantage to any other combustion turbine vendors with whom LG&E Energy Corp., LG&E Capital Corp., or the Companies may deal in the future.

4. Question 23 of the Commission's Data Request asks for copies of responses that the Companies received to a request for purchased power (RFPP) issued February 10, 1999.

5. Each company that answered the Companies' RFPP designated its response as confidential. The Companies' failure to maintain these responses as confidential would compromise their ability to obtain responses to any future requests for proposals or RFPPs.

6. Under KRS 61.878(1)(c), records confidentially disclosed to an agency which are generally recognized as confidential or proprietary in nature are exempt from public inspection. The information described above constitutes confidential proprietary information, the disclosure of which would jeopardize the Companies' future transactions with wholesale power marketers and with ABB, and provide an unfair commercial advantage to ABB's and the Companies' competitors.

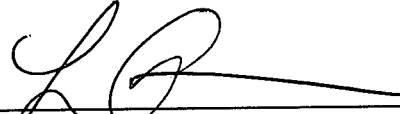
7. The Companies do not object to disclosure of the confidential information, pursuant to a protective agreement, to the Attorney General or other intervenors with a legitimate interest in reviewing the confidential information for the purpose of intervening in this case.

8. In accordance with 807 KAR 5:001 Section 7, ~~three~~¹ copies of the Data Request Responses with the confidential information designated as such, and eleven copies of the Responses with the confidential information omitted, are being filed with the Commission.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company respectfully request that the Commission grant confidential protection to the information

designated as confidential for a period of five years from the date of the filing of this application,
or in the alternative, schedule an evidentiary hearing on all factual issues.

Respectfully submitted,



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202
502/582-1601

John R. McCall
Executive Vice President
General Counsel
Corporate Secretary
Douglas M. Brooks
Senior Counsel Specialist,
Regulatory

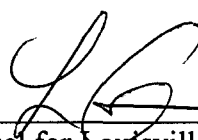
Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 1st day of April, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202



Counsel for Louisville Gas
and Electric Company and
Kentucky Utilities Company

BEFORE THE
KENTUCKY PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS & ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR THE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

CASE NO. 99-056

REVISED

TESTIMONY OF

RONALD L. WILLHITE
VICE PRESIDENT - REGULATORY AFFAIRS
LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

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1 **Q. Are the companies requesting that the Commission issue a Certificate of**
2 **Environmental Compatibility?**

3 A. Yes. As explained in the Amended Application, KU submitted a Statement of
4 Environmental Compatibility to the Natural Resources and Environmental Cabinet in
5 1991, when the initial combustion turbines were under construction at Brown. The
6 Cabinet issued a letter on October 21, 1991 recommending that the Commission issue a
7 Certificate of Environmental Compatibility. The Commission did so in its Order of
8 January 31, 1992 approving the first four turbines at Brown. The Statement, the letter of
9 recommendation, and the permit issued by the Cabinet's Division for Air Quality were all
10 based on the premise that eight simple-cycle combustion turbines would be constructed at
11 Brown on a phased construction schedule. The Statement therefore assessed the potential
12 environmental impacts on air, water, waste and noise from all eight turbines. The two
13 machines under construction will bring the current number of combustion turbines at
14 Brown to six. The Statement of Environmental Compatibility is being submitted as
15 Exhibit A to the Amended Application.

16 **Q. What action should the Commission take regarding this application?**

17 A. The Commission should approve the Companies' application for a Certificate of Public
18 Convenience and Necessity and a Certificate of Environmental Compatibility for the
19 acquisition of two 164 megawatt combustion turbines.

20 **Q. Does this conclude your testimony?**

21 A. Yes, it does.

22

1 VERIFICATION

2 STATE OF KENTUCKY)

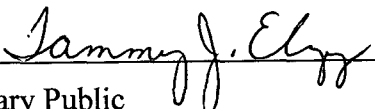
3) SS:

4 COUNTY OF JEFFERSON)

5 The undersigned, **Ronald L. Willhite**, being duly sworn, deposes and says he is Vice
6 President of Regulatory Affairs for Louisville Gas & Electric Company and Kentucky Utilities
7 Company, that he has personal knowledge of the matters set forth in the foregoing testimony,
8 and that the answers contained therein are true and correct to the best of his information,
9 knowledge and belief.

10 
11 _____
12 **RONALD L. WILLHITE**

13
14 Subscribed and sworn to before me, a Notary Public in and before said County and State,
15 this 1st day of April, 1999.

16
17
18 
19 _____
20 Notary Public

21 Notary Public, State at Large, KY.
22 My commission expires Nov. 9, 2002

23 My Commission Expires:
24
25

151442.2

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

**APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR THE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)**

CASE NO. 99-056

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**PUBLIC SERVICE
COMMISSION**

**MOTION OF LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
TO AMEND APPLICATION**

Pursuant to 807 KAR 5:001 § 3(5), Louisville Gas and Electric Company and Kentucky Utilities Company (collectively the "Movants"), by counsel, move the Public Service Commission (the "Commission") for leave to amend the Application for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines, filed on February 11, 1999. The purpose of the amendment is to amend Paragraph No. 6, Permits from Public Authorities, and to request that the Commission grant the Movants a Certificate of Environmental Compatibility pursuant to KRS 278.025 in addition to the Certificate of Convenience and Necessity. An Amended Application and the revised pages 12 and 13 of the testimony of Ronald L. Willhite are tendered with this Motion.

WHEREFORE, Movants respectfully request that the Commission grant the Movants leave to amend their Application for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines.

Respectfully submitted,



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
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502/582-1601

John R. McCall
Executive Vice President
General Counsel
Corporate Secretary

Douglas M. Brooks
Senior Counsel Specialist, Regulatory


Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 1st day of April, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202


Counsel for Louisville Gas
and Electric Company and
Kentucky Utilities Company

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR THE ACQUISITION OF TWO)
164 MEGAWATT COMBUSTION TURBINES)

CASE NO. 99-056

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PUBLIC SERVICE
COMMISSION

AMENDED APPLICATION

Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU") (jointly referred to as "the Companies") hereby petition the Public Service Commission ("Commission") to issue an Order granting the Companies a Certificate of Public Convenience and Necessity pursuant to KRS 278.020 and a Certificate of Environmental Compatibility pursuant to KRS 278.025 for the resource acquisition and ownership of two 164 megawatt combustion turbines. In support of this Application, LG&E and KU respectfully state:

1. LG&E hereby incorporates by reference the Application for Approval of an Alternative Method of Regulation filed on February 11, 1999 in this proceeding as if fully set forth herein, except as amended below:

6. Permits from Public Authorities. On June 17, 1991, KU submitted to the Kentucky Natural Resources and Environmental Protection Cabinet (the "Cabinet") a Statement of Environmental Compatibility in conformity with KRS 278.025. KU's Statement provided information on the environmental impacts of a generating facility consisting of up to eight simple cycle combustion turbines at the Brown Facility. The two which are the subject of this proceeding will bring the total to six. The Statement of Environmental Compatibility contained a description of the proposed facility (including the combustion turbine specifications and a description of the site and its environmental setting), as well as information on the potential environmental impacts of the proposed facility on air, water, waste, and noise. A copy of the

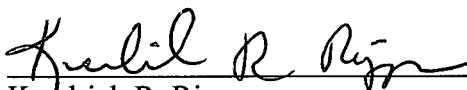
Statement of Environmental Compatibility is attached to this Amended Application as Exhibit A. On October 21, 1991, the Cabinet's Secretary recommended that the Commission issue a Certificate of Environmental Compatibility for the entire Brown Facility. A copy of the letter of recommendation is attached to the original Application as Exhibit 1.

The Companies possess the previously-issued environmental permits necessary to install the fifth and sixth combustion turbines at the Brown Facility. These permits are attached to the original Application as Exhibit 2.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company request that the Public Service Commission issue an order granting the Companies a Certificate of Public Convenience and Necessity pursuant to KRS 278.020 and a Certificate of Environmental Compatibility pursuant to KRS 278.025 for the joint acquisition and ownership of two 164 megawatt combustion turbines at Kentucky Utilities Company's E.W. Brown Generating Station in Mercer County, Kentucky. Final action on this Application is requested of the Commission on or before June 30, 1999, so that LG&E Capital may transfer the units to LG&E and KU in time to meet the Companies' 1999 load requirements.

Dated at Louisville Kentucky, this first day of April, 1999.

**LOUISVILLE GAS AND ELECTRIC
COMPANY
KENTUCKY UTILITIES COMPANY**



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
500 West Jefferson Street
Louisville, Kentucky 40202

John R. McCall
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General Counsel
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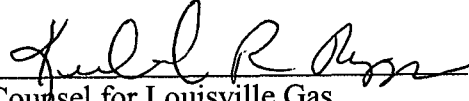
Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 1st day of April, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
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36 East Seventh Street
Cincinnati, OH 45202


Counsel for Louisville Gas
And Electric Company and
Kentucky Utilities Company

151408.02

KENTUCKY UTILITIES COMPANY

ONE QUALITY STREET
LEXINGTON, KENTUCKY
40507
TELEPHONE 606-255-2100

June 17, 1991

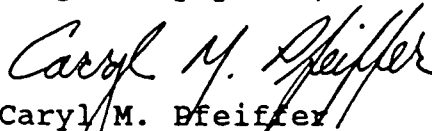
Carl H. Bradley, Secretary
Commonwealth of Kentucky
Natural Resources and Environmental Protection Cabinet
Capital Plaza Tower
Frankfort, Kentucky 40601

Dear Secretary Bradley:

Attached please find Kentucky Utilities Company's statement of environmental compatibility for the E. W. Brown Combustion Turbine Generating Facility. KU is proposing to install up to eight simple cycle combustion turbines at the E. W. Brown Generating Station site to supply peaking generation for its electrical system.

This document is being provided to the Natural Resources and Environmental Protection Cabinet in accordance with KRS 278.025. If you have any questions concerning the following information, please feel free to contact me at the above number.

Very truly yours,


Caryl M. Pfeiffer
Manager, Environmental Services

CMP:db
Attachment

E. W. BROWN COMBUSTION TURBINE GENERATING FACILITY

STATEMENT OF ENVIRONMENTAL COMPATIBILITY

The Kentucky Public Service Commission (PSC) requires that both a Certificate of Convenience and Necessity (CCN) and a Certificate of Environmental Compatibility (CEC) be issued before the construction of an electric generating facility can begin. As part of the CEC, the PSC requires that a statement of environmental compatibility of the proposed site be submitted to Kentucky Natural Resources and Environmental Protection Cabinet (KNREPC) so that recommendations on or objections to the proposed facility can be made to the PSC. The statement of environmental compatibility must conform with KRS 278.025 and include a complete description of the proposed facility and comments on the effects of air pollutants from the proposed facility on public health and welfare, the effects of the proposed facility on the waters of the Commonwealth, the treatment, handling and disposal of solid waste from the proposed facility, noise pollution, and other adverse environmental effects which cannot be avoided.

Description of the Proposed Facility

Combustion Turbine Specifications

Kentucky Utilities Company (KU) is proposing to install up to eight simple cycle combustion turbines at its E. W. Brown Generating Station site in Mercer County, Kentucky. These combustion turbines will be used to supply peaking generation for KU's electrical system.

A combustion turbine is an internal combustion device that drives a turbine from the compressive force generated by the exhaust gas. This turbine is connected directly to a generator which produces the electric energy needed to meet electrical demand. This mode of operation is defined as simple cycle. Steam is not generated under this mode of operation.

Each combustion turbine will have a nominal output rating of 75 to 100 megawatts and will have the capability to burn both distillate fuel oil and natural gas. The heat input to each combustion turbine for these nominal ratings will be in the range of 900 to 1200 million BTU per hour. Number two distillate fuel oil will be the primary fuel since natural gas is not currently available at the site. The nearest bulk supply of natural gas, adequate to supply the combustion turbines, is approximately ten miles from the site. This source of natural gas would only be available under an interruptible contract with a 12- to 24-hour notification requirement prior to draw-down. These conditions make use of natural gas infeasible as a primary fuel for peaking power at the present time. Number two distillate fuel oil will be stored at the site in sufficient quantities to assure an adequate supply to fuel the combustion turbines.

Each combustion turbine will have a design life of 20 years. The combustion turbine generator will be capable of operating at continuous load for an unlimited time period at any ambient condition within the range typical for the site. At least two of the combustion turbines will have fast start capability, defined as going from cold standby to continuous, full load capability within ten minutes.

Each combustion turbine exhaust will be ducted to its own steel stack. The final stack height has not been determined and will depend upon which vendor is selected to supply the combustion turbines. Once a vendor is selected by KU, the stack will be of such a height so as not to exceed good engineering practice. The exhaust gas generated by each combustion turbine will be in excess

of one million cubic feet per minute and at a temperature of approximately 950 degrees F. The pollutant composition of the exhaust gas will be specified by KU to assure compliance with all applicable environmental regulations (as described later in this document).

The commercial operating date of the first combustion turbine is scheduled to be the summer of 1994, followed by three more units in the summer of 1995. KU has made application to the Kentucky Public Service Commission for a Certificate of Convenience and Necessity and Certificate of Environmental Compatibility to allow for the construction of these four generating units. KU's load forecast predicts that additional peaking generation will be needed, with three more simple cycle combustion turbines scheduled for installation through the end of the century (one unit in each of the summers of 1996, 1997 and 1998).

Site Description/Environmental Setting

The combustion turbine peaking facility will be located on the 600 acre E. W. Brown Generating Station site. This property is located in Mercer County, approximately eight miles northeast of Harrodsburg, Kentucky. The site is the location for three coal-fired, steam electric generating units and associated facilities: coal storage and handling, water intake and treatment facilities (cooling towers and an ash treatment basin), as well as electrical substations and associated transmission lines. The E. W. Brown Generating Station has been in operation on the site since 1957.

The site is bounded on the south by Herrington Lake and on the east by the Dix River; the remainder of the property is surrounded by rural land used primarily for agricultural and residential purposes.

17
Approximately 20 acres of the E. W. Brown Generating Station site will be developed for installation of the proposed facility. The combustion turbines will be located in an area of the site that is characterized by thin soils (less than ten feet deep) overlying limestone bedrock. No critical habitats (i.e., wetlands) or environmentally sensitive species (i.e., endangered or threatened plants and animals) are present in the site area to be developed.

Environmental Compatibility of the Proposed Facility

Air

An air quality assessment of the proposed facility has been conducted under USEPA's Prevention of Significant Deterioration (PSD) program. This review must assess the air quality impacts from the proposed facility (with regard to significant deterioration of air quality) prior to commencement of construction. Authority for implementing these regulations in Kentucky rests with the KNREPC, Division for Air Quality (DAQ).

In Kentucky, the DAQ's emission limitations for stationary combustion turbines (401 KAR 59:019) are the same as the federal New Source Performance Standards (NSPS) (40 CFR Subpart GG) promulgated by USEPA. However, the PSD air quality review is required under the Clean Air Act (CAA) to insure that the resulting ambient air quality is such that the national ambient air quality standards (NAAQS) are not exceeded and that the increase in ambient air concentrations because of the accumulation of sources subject to PSD (since 1975 for new sources and since 1977 for modifications to existing sources) do not exceed certain PSD increments mandated by Congress. Thus, a detailed air quality assessment of the impacts of the emissions from the proposed combustion turbines was required to ensure that emissions would not cause either the NAAQS to be violated or the available PSD increments to be exceeded.

Under the PSD regulations, subject sources must also be reviewed for the air pollution control technology proposed to be installed and for its resulting impact upon air quality. USEPA has initiated a new policy in the area of Best Available Control Technology (BACT) determinations for new air pollution sources, called "top-down" BACT. Under this new policy, a party requesting to construct a source must propose the most stringent pollution control technology in existence (i.e., those technologies required under lowest achievable emission rate determinations) for each regulated pollutant and then the requesting party may attempt to justify using a less stringent technology, through a thorough analysis. Each BACT determination is made on a case-by-case basis by the regulatory agency.

The addition of the combustion turbines to the E. W. Brown Generating Station is considered a major modification to an existing source because the new generating units are to be located on the same physical property as an existing source of air pollution (i.e., three coal-fired boilers). Since the proposed facility constitutes a major modification to an existing air

contaminant source, it is subject to the PSD regulations. The air pollutants emitted from the proposed facility that are subject to PSD review are sulfur dioxide (SO₂), nitrogen dioxide (NO₂), total suspended particulate matter (TSP), particulate matter smaller than 10 microns (PM₁₀), carbon monoxide (CO), and volatile organic compounds (VOCs). The air emissions from the combustion turbines will also be regulated by the New Source Performance Standards. Compliance with the more stringent requirement dictated by either set of regulations will be required.

A PSD permit application and an application for a permit to Construct an Air Contaminant Source were submitted by KU to the KNREPC, Division for Air Quality on June 14, 1991. The following summarizes the content of these applications for the proposed facility:

PSD Application: The PSD review of the proposed facility involves a two part evaluation of the pollutants emitted in significant quantities from the combustion turbines. The purpose of these evaluations is to assure that no adverse impact to public health or the environment occurs from the proposed facility and to require the lowest achievable emissions which are technically and economically feasible.

The first evaluation performed was an ambient air quality impact assessment. Compliance with the National Ambient Air Quality Standards was demonstrated, thus assuring that no adverse impact to public health or the environment will occur from the proposed facility. This demonstration was done by the use of air quality dispersion models to predict ground level concentrations of the pollutants emitted in significant quantities from the combustion turbines and other emission sources within the area impacted by the proposed facility. Initial air modeling was performed to predict which pollutants would be emitted from the combustion turbines in excess of the PSD significant impact concentration levels. A significant impact area, defined as the area in which predicted concentrations due to the proposed modification exceed these specified significant impact increments, was then established. The results of this initial air modeling indicated that SO₂ was the only pollutant predicted to be emitted from the combustion turbines in significant concentrations, with a significant impact area extending 50 kilometers from the proposed facility.

One year of preconstruction ambient air quality monitoring may be required as part of the PSD review. An exemption from this requirement can be granted if the impact of the proposed facility is less than the PSD monitoring de minimus concentrations. The models predicted that the maximum impact of the combustion turbines would be less than the specified monitoring de minimus concentrations, thus exempting KU from this requirement.

A detailed air quality impact analysis was performed on the emissions of SO₂, the only pollutant emitted from the combustion turbines above the PSD significant impact concentration levels. Five years of meteorological data were modeled (1983-1987) for compliance with annual, 24-hour and 3-hour NAAQS SO₂ limits. Background concentrations for SO₂ were added to the maximum SO₂ concentrations predicted due to all major emission sources through the modeling, for comparison with the NAAQS. Exceedances of the 24-hour and 3-hour SO₂ standards were predicted to occur. An emission source culpability analyses was performed which indicated that the combustion turbines were not a significant contributor to these exceedances. The predominant sources causing the predicted exceedances are KU's coal-fired boilers at the E. W. Brown Generating Station. Because the combustion turbines have an insignificant impact on the predicted SO₂ exceedances, the proposed facility can be permitted under the PSD regulations. However, KU must address and correct the modeled SO₂ exceedances caused by the E. W. Brown Generating Station. This will be done through Kentucky's State Implementation Plan (SIP) process. The first step will be to substantiate the NAAQS exceedances, then, if substantiated, corrective action will be taken by KU. Corrective action will be taken by KU to eliminate the modeled nonattainment area for SO₂ according to a timetable established by the DAQ.

The second evaluation performed as part of the PSD review was the Best Available Control Technology analysis. This analysis followed USEPA's "top-down" approach to determine the required pollution control technologies to achieve the lowest achievable emission rate (LAER) for the combustion turbines. The level of control established as BACT, must be based upon the technical, environmental and economic impacts of each control option. The proposed controls selected as BACT for each pollutant reviewed are as follows:

1. Nitrogen Dioxide: water injection
2. Sulfur Dioxide: low sulfur fuel oil (0.3% S) and maximum of 2,500 hours/year operation
3. Carbon Monoxide & Volatile Organic Compounds: good combustion efficiency and operating as close to full load conditions as possible
4. Particulate Matter: good combustion efficiency

Permit to Construct an Air Contaminant Source: An application for a permit to construct the combustion turbines was submitted to the KNREPC, Division for Air Quality along with the PSD permit application. This permit application contains specific source information on stack heights, exhaust gas flow rates and velocities, fuel types, pollutant mass emission rates and grain loadings, and hours of operation for each of the combustion turbines currently under consideration by KU. KU has not selected the vendor, so information was submitted for four different vendors' combustion turbines. The information in this permit application is based on requirements dictated by the PSD review as well as vendor-supplied information specific to their combustion turbine.

Water

Water discharges from the proposed facility will be minimal; therefore, the environmental impact resulting from these discharges will be negligible. The types of effluent wastestreams associated with the proposed facility include stormwater runoff, miscellaneous floor drains and possibly water treatment facility wastewaters. No other type of wastewater is expected to be generated by the proposed facility.

KU currently holds a Kentucky Pollutant Discharge Elimination System (KPDES) permit for the E. W. Brown Generating Station. This discharge permit covers the effluent wastestreams resulting from the operation of the coal-fired power plant located on the site. KU has contacted the KNREPC, Division of Water (DOW), the NPDES permit issuing authority in Kentucky, regarding the impact of the proposed facility on the waters of the Commonwealth. KU has notified the DOW that the make-up water for the combustion turbines will be supplied through the existing intake facilities already in operation at the site. The intake source is Herrington Lake. KU has also informed the DOW that it is KU's intention to route any additional effluent wastestreams resulting from the operation of the combustion turbines through the existing ash treatment basin on the site, before discharge back into Herrington Lake.

KU will file a request for modification of its existing discharge permit to cover any additional wastewaters resulting from the proposed facility. This KPDES permit modification request will be filed with the KNREPC, Division of Water, 180 days prior to the first discharge occurring from the combustion turbines. Stormwater discharges associated with construction activities on the site will be controlled through best management practices and plans as approved by the DOW.

The following summarizes the wastewaters expected to result from the operation of the proposed facility:

Stormwater Runoff: Uncontaminated stormwater runoff from the combustion turbines will be routed directly to Herrington Lake. Contaminated stormwater runoff will be routed to an oil/water separator and discharged either to Herrington Lake or to the existing ash treatment basin serving the E. W. Brown Generating Station for further treatment prior to discharge to Herrington Lake.

Miscellaneous Floor Drains: Another wastewater attributable to the combustion turbines will consist of plant floor drains. The water collected in the floor drains will consist mainly of wash waters resulting from maintenance activities. These small quantity wastewaters will contain minimal amounts of oil and grease and suspended solids (the actual concentrations of these parameters will be a function of the extent of contaminant build-up on the turbine components that require periodic washing). These contaminants will be removed through an oil/water separator and the remaining wastewaters will be routed to the existing ash treatment basin serving the E. W. Brown Generating Station for further treatment prior to discharge to Herrington Lake.

Water Treatment Facility Wastewaters: The decision on whether to install a demineralizer system to supply purified water for the water injection system for NOx control, has not been made by KU. Various alternatives to determine the least cost approach to supply this water are currently being evaluated. If the decision is made to install a new demineralizer system, wastewater will be generated from its operation. If new water treatment facilities are built, they will consist of the following equipment: clarifier, sand and/or gravity filter, carbon filter, and demineralizer. Wastewaters from these water treatment facilities will consist of demineralizer regenerate wastes, backwash from the filters, and clarifier tank settleable solids, all of which will be routed to the existing ash treatment basin serving the E. W. Brown Generating Station for treatment prior to discharge to Herrington Lake.

Treated water for the water injection system for NOx control may be provided from the existing water treatment facility already located at the site and associated with the coal-fired power plant. If the existing demineralizer system is utilized to supply the purified water, no new wastestreams will be generated, but there will be increases in the amount

of existing wastewaters already being routed to the ash treatment basin serving the E. W. Brown Generating Station.

The water injection system used to control NOx from the combustion turbines will require the use of significant quantities of demineralized water during operational periods. It is estimated that each combustion turbine will consume 115,000 to 230,000 gallons of purified water during each 24 hours of operation. Regardless of the final water treatment option chosen by KU, water storage facilities will be required (4-250,000 gallon storage tanks) to supply the needed demineralized water for the water injection system to control NOx emissions from the combustion turbines.

It is likely that the KNREPC, Division of Water will require water quality monitoring and analysis of the effluent wastewaters resulting from the combustion turbines during operational periods. These wastestreams will be considered internal monitoring points and may be subject to effluent limitations for oil and grease, total suspended solids, and heavy metals.

Waste

Miscellaneous construction debris will be generated at the site during the installation of the combustion turbines. Upon completion of construction, all resulting debris will be removed and disposed of in accordance with the KNREPC, Division of Waste Management's requirements for construction/demolition debris.

No solid, hazardous or toxic wastes are expected to be generated from the operation of the proposed facility. This may change if Selective Catalytic Reduction (SCR) is mandated by USEPA as BACT for NOx control from the combustion turbines. For generating units with SCR, a spent catalyst is generated. The catalyst must be replaced periodically, the disposal of which would be regulated by federal and state hazardous waste regulations.

Noise

In general, noise impacts from any proposed facility are dependent upon the size of the site being developed, surrounding land uses, and existing ambient noise levels.

The property on which the combustion turbines are to be located is part of a 600 acre site where the E. W. Brown Generating Station is presently located. This site has been zoned for industrial use by the Harrodsburg-Mercer County Planning & Zoning Commission. The

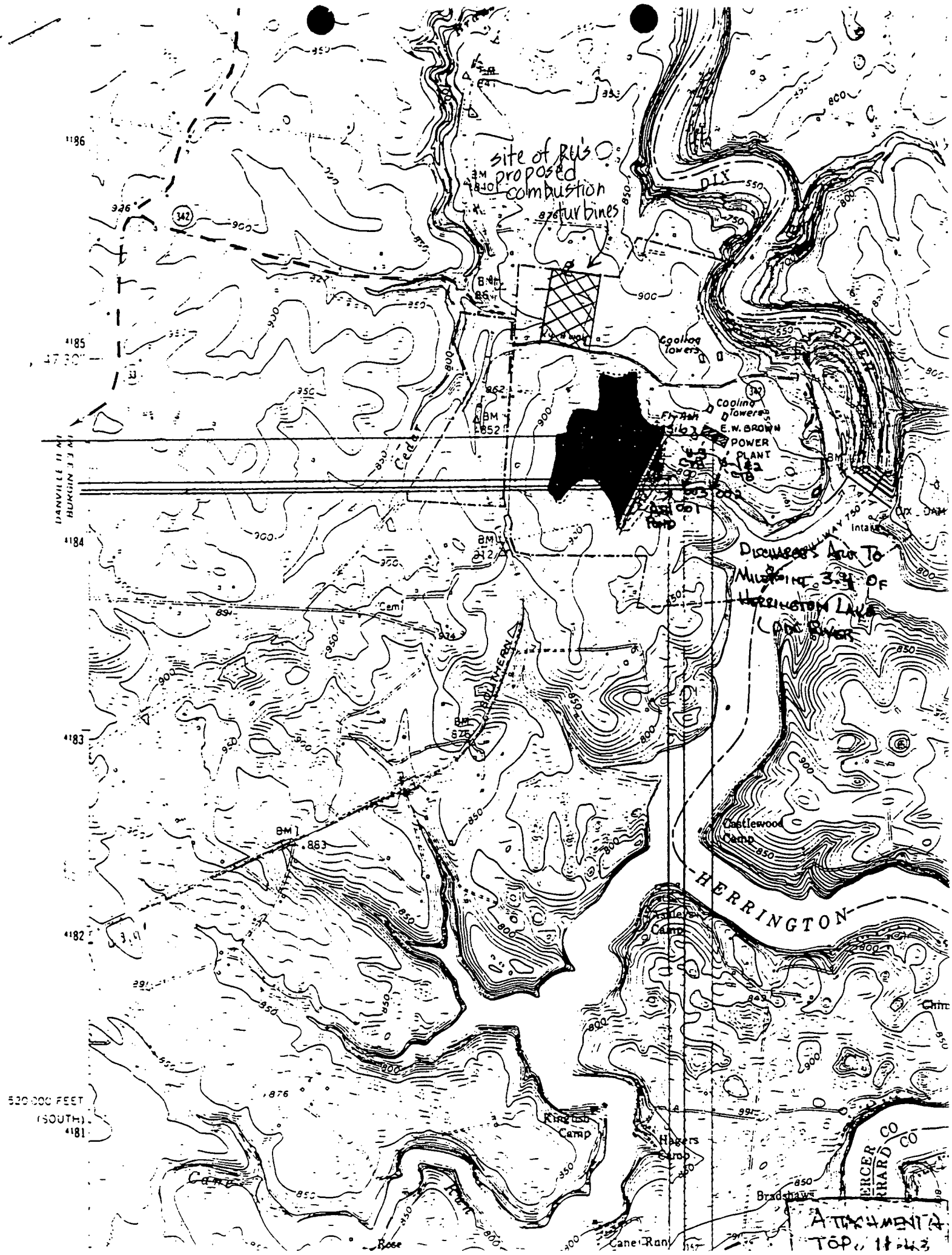
surrounding land use is predominantly agricultural, with active farming occurring.

Typical noise levels of 60-65 dBA at 400 feet will occur when the combustion turbines are operational. Each combustion turbine, generator, and mechanical accessory equipment will be housed in enclosures with acoustic insulation for control of noise. In addition, an adequate buffer zone from the public is provided by the extensive property held by KU at the E. W. Brown Generating Station site.

Noise sensitive receptors (i.e., those areas or land uses where the public could potentially be adversely affected by the noise from the proposed facility) are located over two miles from the site and thus should not be impacted by noise resulting from the proposed facility.

Summary

In summary, the environmental impacts resulting from the construction and operation of the proposed facility at the E. W. Brown Generating Station will not result in any undue adverse impacts to the air, water or land resources of the Commonwealth of Kentucky.



site of RUS
proposed
combustion
turbines

DIX 550

Cooling
towers

E.W. BROWN
POWER
PLANT

DISCHARGE AREA TO
MILE 3.34 OF
HERRINGTON LEVEE
ON RIVER

HERRINGTON

ATTACHMENT
TOP. 11-43

520,000 FEET
(SOUTH)
4181

4186

4185
47 30'

4184

4183

4182

4181

DARVILLE II MI
ALBUQUIN II MI

342

BM 854

BM 852

BM 872

BM 872

BM 863

3.01

876

King's
Camp

Hager's
Camp

ERGER
SHARD CO

Bradshaw

Cane Run

Rose

WATER

Castlewood
Camp

Camp

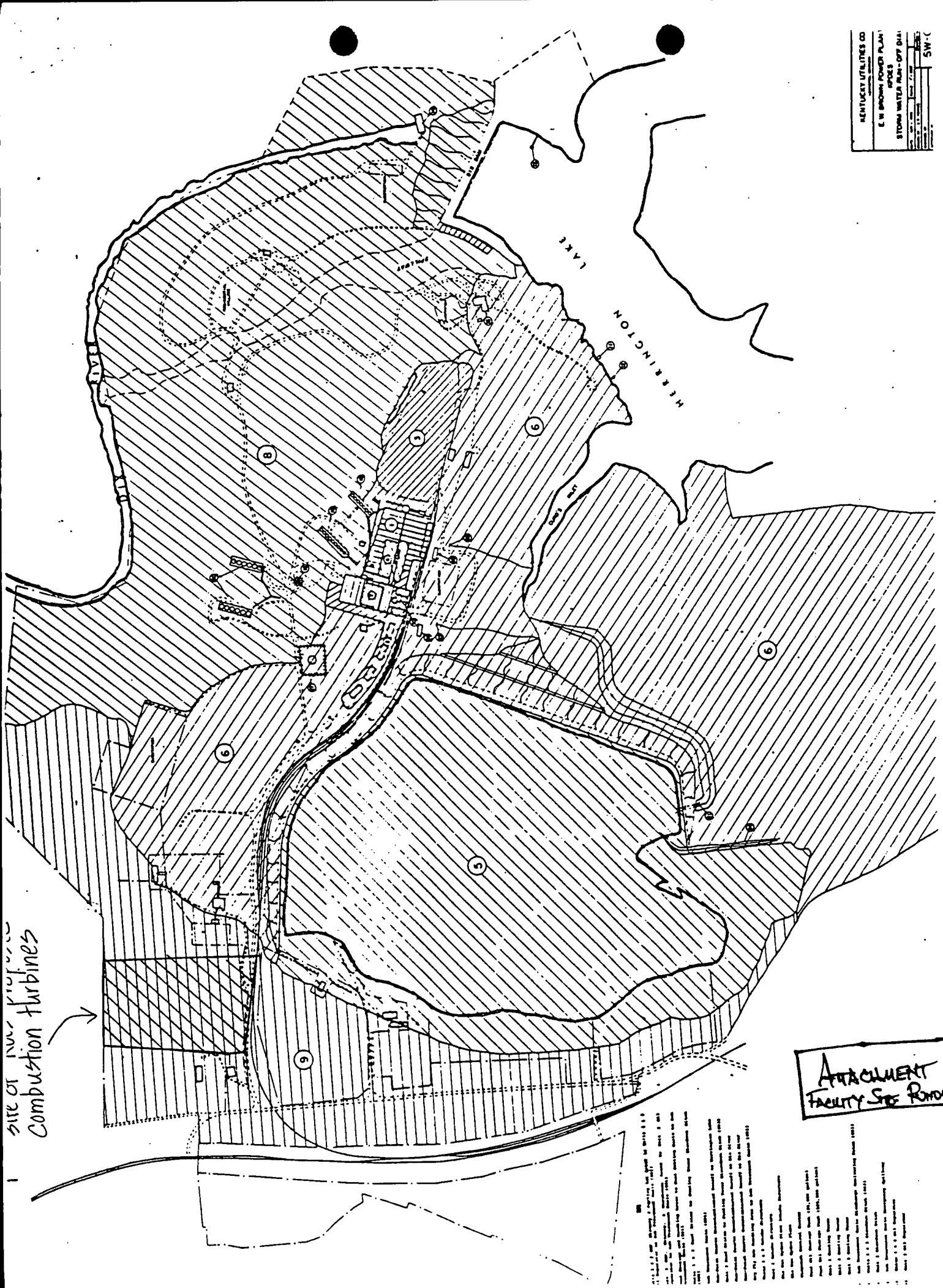
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SITE OF NEW PROJECT
 COMBUSTION TURBINES

ATTACHMENT B
 FACILITY SITE RENDITION

1. This plan shows the proposed layout of the facility and the location of the combustion turbines. The site is located on the east side of the road, adjacent to the lake. The plan shows the location of the turbines, the buildings, and the roads. The site is bounded by the road to the north and the lake to the east. The plan shows the location of the turbines, the buildings, and the roads. The site is bounded by the road to the north and the lake to the east.



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KENTUCKY 40602
www.psc.state.ky.us
(502) 564-3940
Fax (502) 564-3460

Ronald B. McCloud, Secretary
Public Protection and
Regulation Cabinet

Helen Helton
Executive Director
Public Service Commission

Paul E. Patton
Governor

March 26, 1999

To: All Parties of Record

Re: Case No. 99-056

We enclose one attested copy of each of the Commission's Orders
In the above case.

Sincerely,

A handwritten signature in black ink that reads "Stephanie Bell".

Stephanie Bell
Secretary of the Commission

SB/hv
Enclosures - 2



Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
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Louisville, KY 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
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Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
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Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Frankfort, KY 40601

Honorable Michael L. Kurtz
Counsel for KIUC
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE) CASE NO.
OF PUBLIC CONVENIENCE AND NECESSITY) 99-056
FOR THE RESOURCE ACQUISITION OF TWO)
164 MEGAWATT COMBUSTION TURBINES)

O R D E R

Louisville Gas and Electric Company and Kentucky Utilities Company having moved for an extension of time until April 1, 1999 in which to respond to the Commission's March 16, 1999 Order and the Commission finding good cause, IT IS HEREBY ORDERED that the motion is granted.

Done at Frankfort, Kentucky, this 26th day of March, 1999.

By the Commission

ATTEST:


Executive Director

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE) CASE NO.
OF PUBLIC CONVENIENCE AND NECESSITY) 99-056
FOR THE RESOURCE ACQUISITION OF TWO)
164 MEGAWATT COMBUSTION TURBINES)

O R D E R

This matter arising upon the motion of the Kentucky Industrial Utility Customers, Inc. ("KIUC"), filed March 15, 1999, for full intervention, and it appearing to the Commission that the KIUC has a special interest which is not otherwise adequately represented, and that such intervention is likely to present issues and develop facts that will assist the Commission in fully considering the matter without unduly complicating or disrupting the proceedings, and this Commission being otherwise sufficiently advised,

IT IS HEREBY ORDERED that:

1. The motion of the KIUC to intervene is granted.
2. The KIUC shall be entitled to the full rights of a party and shall be served with the Commission's Orders and with filed testimony, exhibits, pleadings, correspondence, and all other documents submitted by parties after the date of this Order.
3. Should the KIUC file documents of any kind with the Commission in the course of these proceedings, it shall also serve a copy of said documents on all other parties of record.

Done at Frankfort, Kentucky, this 26th day of March, 1999.

By the Commission

ATTEST:


Executive Director

OGDEN NEWELL & WELCH

RICHARD F. NEWELL
JOHN T. BALLANTINE
JOSEPH C. OLDHAM
JAMES L. COORSSEN*
STEPHEN F. SCHUSTER
JOHN G. TREITZ, JR.
WALTER LAPP SALES
ERNEST W. WILLIAMS
SCOTT W. BRINKMAN
W. GREGORY KING
KENDRICK R. RIGGS†
JAMES B. MARTIN, JR.

LISA ANN VOGT
TURNER P. BERRY
JOHN WADE HENDRICKS
LYNN H. WANGERIN
DOUGLAS C. BALLANTINE
THOMAS E. RUTLEDGE††
THOMAS M. WILLIAMS**
SHARON A. MATTINGLY
LAUREN ANDERSON
GENE LYNN HUMPHREYS
ANTHONY L. SCHNELL
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1700 CITIZENS PLAZA
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MOLLY HYLAND WOLFRAM
TIMOTHY J. EIFLER
KELLY S. HENRY
J. GREGORY CORNETT
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ROBERT W. ADAMS III**
MAUREEN M. CARR††
E. PATRICK MULVIHILL
JOSEPH A. KIRWAN
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OF COUNSEL
JAMES S. WELCH
JOHN S. GREENEBAUM PSC
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ROBERT E. THIEMAN
ENOCH M. POON

SQUIRE R. OGDEN
1899-1984

ALSO ADMITTED:
*FLORIDA
**INDIANA
†VIRGINIA
††DISTRICT OF COLUMBIA
□OHIO

Writer's Direct Dial: (502)560-4222
Writer's E-mail: kriggs@ogdenlaw.com

March 12, 1999

Ms. Helen C. Helton
Executive Director
Public Service Commission
730 Schenkel Lane
Frankfort, KY 40601

RE: KPSC Case No: 99-056
Our File No: 1/220

RECEIVED
MAR 24 1999
PUBLIC SERVICE
COMMISSION

Dear Ms. Helton:

Enclosed for filing are the original and 10 copies of the Motion of Louisville Gas and Electric Company and Kentucky Utilities Company for Extension of Time in the above-referenced matter.

Yours very truly,



Kendrick R. Riggs

KRR/ec

Enclosures

cc: Parties of Record

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR THE RESOURCE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

CASE NO. 99-056

RECEIVED
MAR 24 1999
PUBLIC SERVICE
COMMISSION

MOTION OF LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
FOR EXTENSION OF TIME

Louisville Gas and Electric Company and Kentucky Utilities Company (collectively “the Movants”), by counsel, move the Public Service Commission (the “Commission”) for an extension of time through and until Thursday, April 1, 1999 to file responses to the Commission’s Order of March 16, 1999.

The Commission’s March 16, 1999 Order directs the Movants to provide certain information by March 23, 1999. Movants require a short extension of time due to their current regulatory workload and to prepare responses to the Commission’s requests for information in the March 16, 1999 Order.

WHEREFORE, Movants respectfully request the Commission to grant their request for an extension of time in which to respond to the Commission’s Order of March 16, 1999 through and until Thursday, April 1, 1999.

Respectfully submitted,



Kendrick R. Riggs

Lauren Anderson

OGDEN NEWELL & WELCH

1700 Citizens Plaza

500 West Jefferson Street

Louisville, Kentucky 40202

502/582-1601

John R. McCall

Executive Vice President

General Counsel

Corporate Secretary

Douglas M. Brooks

Senior Counsel Specialist, Regulatory

Ronald L. Willhite

Vice President, Regulatory Affairs

Louisville Gas & Electric Company

220 West Main Street

P.O. Box 32010


Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 23rd day of March, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202


Counsel for Louisville Gas
and Electric Company and
Kentucky Utilities Company



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

March 24, 1999

To: All parties of record

RE: Case No. 99-056

We enclose one attested copy of the Commission's Order in the above case.

Sincerely,

Stephanie Bell

Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
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Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
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Louisville, KY 40202

Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Franfort, KY 40601

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY) CASE NO. 99-056
FOR THE ACQUISITION OF TWO 164)
MEGAWATT COMBUSTION TURBINES)

O R D E R

The Commission, having considered the motion of the Attorney General, Office for Rate Intervention, requesting modification of the procedural schedule to extend the date for filing his initial data requests from March 19, 1999 to April 1, 1999, and the representation that Louisville Gas and Electric Company and Kentucky Utilities Company do not object and will use their best efforts to file responses to those requests by April 9, 1999, HEREBY ORDERS that the procedural schedule shall be so changed.

Done at Frankfort, Kentucky, this 24th day of March, 1999. ,

By the Commission

ATTEST:


Executive Director



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

March 19, 1999

To: All parties of record

RE: Case No. 99-056

We enclose one attested copy of the Commission's Order in
the above case.

Sincerely,

A handwritten signature in cursive script that reads "Stephanie Bell".

Stephanie Bell
Secretary of the Commission

SB/hv
Enclosure

Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
Louisville, KY 40232 2010

Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, KY 40202

Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Frankfort, KY 40601

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF LOUISVILLE GAS AND ELECTRIC)	
COMPANY AND KENTUCKY UTILITIES COMPANY)	CASE NO.
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)	99-056
AND NECESSITY FOR THE ACQUISITION OF TWO)	
164 MEGAWATT COMBUSTION TURBINES)	

O R D E R

IT IS ORDERED that the Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU") shall file an original and 10 copies of the following information with the Commission, with a copy to all parties of record. Each copy of the data requested should be placed in a bound volume with each item tabbed. When a number of sheets are required for an item, each sheet should be appropriately indexed, for example, Item 1(a), Sheet 2 of 6. Include with each response the name of the witness who will be responsible for responding to questions relating to the information provided. Careful attention should be given to copied material to ensure that it is legible. Where information requested herein has been provided along with the original application, in the format requested herein, reference may be made to the specific location of said information in responding to this information request. The questions below were inadvertently omitted from the March 16, 1999 Order. The information requested herein is due no later than April 1, 1999.

11. Refer to the Application at Page 2. LG&E and KU indicate that the two combustion turbines ("CTs") will be the fifth and sixth units at KU's E. W. Brown

Generating Station ("Brown"). What is the total megawatt capacity of the CTs currently in place at Brown?

12. Refer to Exhibits 1 and 2 of the Application. These exhibits contain copies of various environmental approvals and permits KU secured in the early 1990s for the planned CTs at Brown.

a. Have any of the approvals or permits been modified, amended, or updated since the authorization date?

b. If yes, provide copies of the modification, amendment, or update, along with an explanation of the nature of the change. Also explain in detail why this information was not included in the Application.

13. Provide the following information concerning the installation of CTs at Brown, as was envisioned when KU originally sought the environmental approvals and permits.

a. The megawatts to be generated by the CTs.

b. The various emissions limitations.

c. The various effluent discharge limitations.

14. Provide the following information concerning the CTs currently operating at Brown.

a. The various levels of emissions, as of the end of 1998 or the most recent information available.

b. The various levels of effluent discharges, as of the end of 1998 or the most recent information available.

15. Provide the following information concerning the two new 164 megawatt CTs under construction at Brown, for both the units alone and for the entire site upon the new CTs becoming operational.

- a. The levels of emissions expected.
- b. The levels of effluent discharges expected.

16. Refer to Exhibit 2, Page 4 of 4, of the Application, General Conditions No. 17.

a. For the four CTs already operational at Brown, was the phased construction schedule listed in General Conditions No. 17 complied with? If not, what were the ramifications of not being in compliance with the construction schedule?

b. It would appear that the construction of the two new 164 megawatt CTs is not in compliance with the permit construction schedule. Describe the impacts non-compliance with the construction schedule has on the overall air quality permit.

17. Refer to Exhibit 3a of the Application, the General Conditions of Sale between ABB Power Generation, Inc. and LG&E Capital Corp.

- a. When was this agreement executed?
- b. Provide a copy of the October 2, 1998 letter from C. A. Markel to Chris Broemmelsick, which is referenced in the "General" section of the agreement.
- c. Explain in detail why only a portion of this document was included in the application.
- d. Provide copies of the entire General Conditions of Sale document.

18. Provide the following information concerning the site of the new CTs at Brown:

a. The original book cost to KU for the land and all associated facilities and services that will be utilized during the construction of the CTs.

b. The fair market values of all the assets listed in the response to part (a) above, as of November 1998. Include a detailed explanation as to how KU determined the fair market values.

c. All accounting entries made to KU's books reflecting the transfer of the new CTs' site and associated facilities and services from KU to LG&E Capital Corp. If no accounting entries were recorded, explain in detail why.

d. All accounting entries made to KU's books that reflect expenses associated with the construction of the new CTs that KU is charging to LG&E Capital Corp. For each entry, explain in detail how the expense is determined and how it is allocated.

19. Refer to the testimony of Ronald L. Willhite, Page 9. LG&E Energy Corp.'s Corporate Policies and Guidelines for InterCompany Transactions ("Transaction Guidelines") clearly state that, "Transfers or sales of assets will be priced at the greater of cost or fair market value for transfers or sales from LG&E or KU to LG&E Energy or other subsidiaries and at the lower of cost or fair market value for transfers or sales made to LG&E or KU from LG&E Energy or any of LG&E Energy's non-utility subsidiaries." Explain why Mr. Willhite states on Page 9 of his testimony that, if the Commission grants the certificate requested by LG&E and KU, LG&E Capital Corp. will transfer title of ownership of the two new CTs to LG&E and KU at cost.

20. Assume for the purposes of this question that the Commission approves the request to transfer the two new CTs to LG&E and KU.

a. Provide the accounting entries that will be made on LG&E's and KU's books to reflect the respective shares of the new CTs.

b. Provide a listing of the expenses KU will incur to operate and maintain the new units. Explain in detail how KU will allocate to LG&E its portion of these expenses. A response that the Transaction Guidelines will be followed will be deemed an insufficient response.

21. Assume for purposes of this question that the Commission does not approve the request by LG&E and KU.

a. Whose personnel will be actually operating and maintaining the CTs, LG&E Capital Corp.'s or KU's?

b. If KU's, describe the expenses that will be allocated between the two entities, and explain in detail how allocations will be made. A response that the Transaction Guidelines will be followed will be deemed an insufficient response.

c. Explain in detail how the gas supply and other fuel-related expenses would be allocated between KU and LG&E Capital Corp. A response that the Transaction Guidelines will be followed will be deemed an insufficient response.

d. What would the estimated revenues from the transmission of the CTs' generation be to KU on an annual basis? Explain how the estimate was determined.

22. Refer to Exhibits HBS-2 and HBS-3 of the Application. Describe the extent to which the energy and demand forecast methodologies presented in these exhibits are different from the methodologies employed in LG&E's and KU's last integrated resource plans filed with the Commission.

23. Mr. Ronald L. Wilhite in his testimony stated, "In fact, the companies have issued request for purchased power for the summers of 1999-2002."

a. Provide a copy of the request for purchased power "RFPP" which was sent out.

b. Provide a list of the recipients of the RFPP.

c. Provide a copy of each response to the RFPP and a summary of all responses that ranks the proposals and explains why each was accepted or rejected.

d. Since the CTs will be used for a period longer than 1999-2002, explain why your RFPP was limited to the 1999-2002 period instead of a longer period.

24. Has this ABB 164MW CT proposed in your application been tested and in operation in the USA? If yes, provide the following information.

a. How long has this CT been in operation?

b. How many of these CTs have been installed?

c. Has any problem been encountered with this model?


d. What kinds of fuel will this CT require?

e. If natural gas is the primary fuel to be used, will additional pipeline need to be constructed? Explain.

Done at Frankfort, Kentucky, this 19th day of March, 1999.

By the Commission

ATTEST:


Executive Director

RECEIVED

MAR 19 1999

PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In Re the:

Application of Louisville Gas & Electric Company)
and Kentucky Utilities Company for a Certificate) Case No. 99-056
of Convenience and Necessity for the Acquisition)
of two 164 Megawatt Combustion Turbines)

MOTION FOR CHANGE IN PROCEDURAL SCHEDULE

Comes the Attorney General, by and through his Office for Rate Intervention, and moves the Commission to grant a change in the published procedural schedule in the above styled action to permit him to file his initial data requests on April 1, 1999, rather than on March 19, 1999, as now specified in the schedule. The Applicants will respond to the data requests on a "best efforts" basis by April 9, 1999. In support of the Motion the Attorney General states that it plans to consult with David Brown Kinloch who is currently out of country and is not scheduled to return until the 24th of March, 1999. He will have been gone for a month and will need a short time to consider the application before data requests are prepared.

The Attorney General is authorized to state that the Applicants have agreed to the extensions as stated in this Motion.

Respectfully Submitted,



Elizabeth E. Blackford
Assistant Attorney General
(502) 696-5458

CERTIFICATE OF SERVICE AND OF FILING

I hereby certify that this the 19th day of March, 1999, I have filed the original and ten copies of the foregoing with the Public Service Commission at 730 Schenkel Lane, Frankfort, Kentucky, 40601 and that I have served the parties by mailing a true copy to the following:

KENDRICK RIGGS
ALLYSON STURGEON
OGDEN NEWELL & WELCH
1700 CITIZENS PLAZA
500 WEST JEFFERSON ST
LOUISVILLE KY 40202

RONALD WILHITE
VICE PRES REGULATORY AFFAIRS
LOUISVILLE GAS & ELECTRIC COMPANY
P O BOX 32010
LOUISVILLE KY 40232

MICHAEL KURTZ
BOEHM KURTZ & LOWRY
2110 CBLD CENTER
36 EAST SEVENTH STREET
CINCINNATI OH 45202

BOEHM, KURTZ & LOWRY

ATTORNEYS AT LAW
2110 CBLD CENTER
36 EAST SEVENTH STREET
CINCINNATI, OHIO 45202
TELEPHONE (513) 421-2255
TELECOPIER (513) 421-2764

Via Overnight Mail

March 11, 1999

RECEIVED

MAR 15 1999

PUBLIC SERVICE
COMMISSION

Hon. Helen Helton
Executive Director
Kentucky Public Service Commission
730 Schenkel Lane
Frankfort, Kentucky 40601

Re: In The Matter Of: Application of Louisville Gas & Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines, Case No. 99-056

Dear Ms. Helton:

Please find enclosed the original and ten copies of the Petition to Intervene of Kentucky Industrial Utility Customers, Inc. in the above-referenced matter. By copy of this letter, all parties listed on the Certificate of Service have been served.

Please place this document of file.

Very Truly Yours,



Michael L. Kurtz, Esq.
BOEHM, KURTZ & LOWRY

MLK/kew
Attachment
cc:

Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing was served by mailing a true and correct copy, by regular U.S. mail (unless otherwise noted) to all parties on this 11th day of March, 1999.

Hon. Elizabeth E. Blackford
Utility & Rate Intervention Division
1024 Capital Holding Center Dr.
Suite 200
Frankfort, KY 40601

Hon. Kendrick Riggs
Ogden Newell & Welch
1700 Citizens Plaza
500 W. Jefferson Street
Louisville, KY 40202-2874

Hon. Douglas M. Brooks
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40202

Mr. Ronald L. Wilhite
Vice President of Regulatory Affairs
Kentucky Utilities Company
220 West Main Street
Louisville, KY 40202


Michael L. Kurtz, Esq.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

MAR 15 1999

In The Matter Of: Application of Louisville Gas & Electric Company :
and Kentucky Utilities Company for a Certificate of Public :
Convenience and Necessity for the Acquisition of Two 164 :
Megawatt Combustion Turbines :

Case No. 99-056 PUBLIC SERVICE
COMMISSION

PETITION TO INTERVENE OF
KENTUCKY INDUSTRIAL UTILITY CUSTOMERS, INC.

Pursuant to K.R.S. §278.310 and 807 KAR 5:001 Section 3(8), Kentucky Industrial Utility Customers, Inc. ("KIUC") requests that it be granted full intervenor status in the above-captioned proceeding and states in support thereof as follows:

1. KIUC is an association of the largest electric and gas public utility customers in Kentucky. The purpose of KIUC is to represent the industrial viewpoint on energy and utility issues before this Commission and before all other appropriate governmental bodies. The members of KIUC who purchase electricity from Kentucky Utilities Company ("KU") and Louisville Gas & Electric Company ("LG&E") and who will participate herein are: Carbide/Graphite Group, Inc., E.I. DuPont de Nemours & Company, Ford Motor Company, Kosmos Cement Company, Philip Morris, USA, Rohm & Haas Company, General Electric-Appliance Park, Geon Company, Lexmark International, Inc., Square D. Company, Clopay Plastic Products Company, Inc., Dow Corning Corporation, Toyota Motor Manufacturing, USA, and Westvaco. KIUC will supplement its Petition with the names of additional participating members as this information becomes known.

2. The matters being decided by the Commission in this case may have a significant impact on the rates paid by KIUC for electricity. Electricity represents a significant cost of doing business for KIUC. The attorneys for KIUC authorized to represent them in this proceeding and to take service of all documents are:

David F. Boehm, Esq.
Michael L. Kurtz, Esq.
BOEHM, KURTZ & LOWRY
2110 CBLD Center, 36 East Seventh Street
Cincinnati, Ohio 45202
(513) 421-2255

3. The position of KIUC cannot be adequately represented by any existing party. KIUC intends to play a constructive role in the Commission's decision making process herein and KIUC's participation will not unduly prejudice any party.

WHEREFORE, KIUC requests that it be granted full intervenor status in the above captioned proceeding.

Respectfully submitted,



David F. Boehm, Esq.

Michael L. Kurtz, Esq.

BOEHM, KURTZ & LOWRY

2110 CBLD Center, 36 East Seventh Street

Cincinnati, Ohio 45202

Ph: (513) 421-2255 Fax: (513) 421-2764

E-Mail: KIUC@aol.com

**COUNSEL FOR KENTUCKY INDUSTRIAL
UTILITY CUSTOMERS, INC.**

March 11, 1999



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

March 16, 1999

To: All parties of record

RE: Case No. 99-056

We enclose one attested copy of the Commission's Order in
the above case.

Sincerely,


Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
Louisville, KY 40232 2010

Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, KY 40202

Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Frankfort, KY 40601

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY) CASE NO. 99-056
FOR THE ACQUISITION OF TWO 164)
MEGAWATT COMBUSTION TURBINES)

O R D E R

IT IS ORDERED that Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU") shall file the original and 6 copies of the following information with the Commission no later than March 23, 1999, with a copy to all parties of record. Each copy of the data requested should be placed in a bound volume with each item tabbed. When a number of sheets are required for an item, each sheet should be appropriately indexed, for example, Item 1(a), Sheet 2 of 6. Include with each response the name of the witness who will be responsible for responding to questions relating to the information provided. Careful attention should be given to copied material to ensure that it is legible. Where information requested herein has been provided along with the original application, in the format requested herein, reference may be made to the specific location of said information in responding to this information request. When applicable, the information requested herein should be provided for total company operations and jurisdictional operations, separately.

1. Refer to Mr. Willhite's testimony, p. 7, lines 8-7. On what date did LG&E and KU determine that the acquisition of the combustion turbines is the best generation

resource to meet their combined needs? Provide copies of all internal memoranda, letters, notes, board minutes or other writings which document that date.

2. Refer to Mr. Willhite's testimony, p. 7, lines 3-8.

a. On what date did LG&E Capital Corporation sign a contract with ABB to purchase the turbine units?

b. On what date did LG&E Capital Corporation sign a purchase option with ABB?

3. Who owns the land on which the turbines are now being constructed? If KU owns the land, has this land previously been included in KU's rate base?

4. Provide a copy of the deed, lease agreement, or other written document that authorizes LG&E Capital to construct the turbines at the E.W. Brown Generating Station.

5. Provide a copy of Mr. Willhite's October 30, 1998 letter to the Commission as referenced in Mr. Willhite's testimony at p. 7, lines 6-8.

6. Mr. Willhite's October 30, 1998 letter to the Commission states, in the third paragraph, that if the turbines are determined to be the best generation resources for LG&E and KU, a certificate of environmental compatibility will be filed with the Commission.

a. What was basis for this statement by Mr. Willhite?

b. Did Mr. Willhite consult with anyone on this subject prior to sending this letter? If yes, provide the names of the individuals consulted and the information provided by each.

c. Was Mr. Willhite's October 30, 1998 letter seen by anyone prior to it being sent? If yes, provide the names and titles of each person who saw it.

7. Mr. Willhite's testimony, at p. 12, lines 13-22, states that a certificate of environmental compatibility is not being requested because the Commission granted such a certificate in 1991 for the entire Brown site.

a. When did Mr. Willhite first become aware that the pending application would not include a request for a certificate of environmental compatibility?

b. When did Mr. Willhite first become aware that the Commission had already granted a certificate of environmental compatibility in 1991 for the entire Brown site?

8. Refer to Mr. Willhite's testimony, p. 12, lines 21-22. Exactly where in the pending application is "[t]his information, and the 1991 Certificate" which is referenced as being submitted with the application?

9. Is Mr. Willhite's conclusion that the Commission issued a certificate of environmental compatibility in 1991 for the entire Brown site based on something in the Commission's January 31, 1992 Order in Case No. 91-115?¹ If yes, reference the specific provision granting a certificate of environmental compatibility for the entire Brown site. If no, explain in detail the basis for Mr. Willhite's conclusion.

¹ Case No. 91-115, The Application Of Kentucky Utilities Company For a Certificate of Convenience And Necessity And a Certificate of Environmental Compatibility To Construct Four 75 Megawatt Combustion Turbine Peaking Units And Associated Facilities Scheduled For Completion In 1994 And 1995, Respectively, To Be Located At The Company's E.W. Brown Generating Station In Mercer County, Kentucky.

10. What is the earliest verifiable date that anyone at KU concluded that the Commission had issued a certificate of environmental compatibility in 1991 for the entire Brown site.

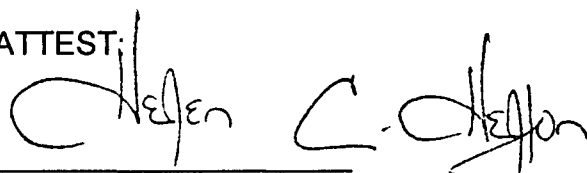
a. If the date is before December 20, 1993, explain in detail why KU filed an application with the Commission on December 20, 1993 requesting a certificate of environmental compatibility to construct one turbine at the Brown site.

b. If the date is prior to May 13, 1994, did KU advise the Commission prior to its granting a certificate of environmental compatibility for one turbine at the Brown site that the requested certificate was not needed?

Done at Frankfort, Kentucky, this 16th day of March, 1999.

By the Commission

ATTEST:



Executive Director



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

March 12, 1999

To: All parties of record

RE: Case No. 99-056

We enclose one attested copy of the Commission's Order in
the above case.

Sincerely,

A handwritten signature in cursive script that reads "Stephanie Bell".

Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
Louisville, KY 40232 2010

Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, KY 40202

Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Franfort, KY 40601

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE)
OF PUBLIC CONVENIENCE AND NECESSITY) CASE NO. 99-056
FOR THE ACQUISITION OF TWO 164)
MEGAWATT COMBUSTION TURBINES)

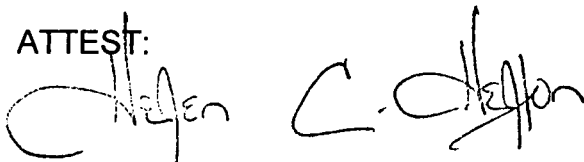
O R D E R

The Commission, on its own motion, HEREBY ORDERS that the procedural schedule listed in Appendix A, which is attached hereto and incorporated herein, shall be followed in this case.

Done at Frankfort, Kentucky, this 12th day of March, 1999.

By the Commission

ATTEST:



Executive Director

APPENDIX A

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NO. 99-056 DATED MARCH 12, 1999

Initial requests for information to LG&E and KU shall
be filed no later than 3/19/99

LG&E and KU shall file responses to
the original requests for information no later than..... 4/1/99

All supplemental requests for information (to
include only those matters within the scope of
the initial requests) to LG&E and KU shall be
filed no later than 4/9/99

LG&E and KU shall file responses to
supplemental requests for information
no later than..... 4/19/99

Intervenors' testimony, if any, shall be filed in
verified prepared form no later than..... 4/29/99

All requests for information to Intervenors
shall be due no later than 5/7/99

Intervenors shall file responses to requests for
information no later than..... 5/20/99

Last day for LG&E and KU to publish notice
of hearing date..... 5/25/99

Public Hearing is to begin at 9:00 a.m., Eastern
Daylight Time, in Hearing Room 1 of the Commission's
offices at 730 Schenkel Lane, Frankfort, Kentucky,
for the purpose of cross-examination of witnesses
of LG&E, KU, and Intervenors 6/1/99



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

March 12, 1999

To: All parties of record

RE: Case No. 99-056

We enclose one attested copy of the Commission's Order in
the above case.

Sincerely,

Stephanie Bell

Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
Louisville, KY 40232 2010

Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, KY 40202

Elizabeth E. Blackford
Assistant Attorney General
1024 Capital Center Drive
Franfort, KY 40601

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND)
ELECTRIC COMPANY AND KENTUCKY)
UTILITIES COMPANY FOR A CERTIFICATE) CASE NO.
OF PUBLIC CONVENIENCE AND NECESSITY) 99-056
FOR THE RESOURCE ACQUISITION OF TWO)
164 MEGAWATT COMBUSTION TURBINES)

O R D E R

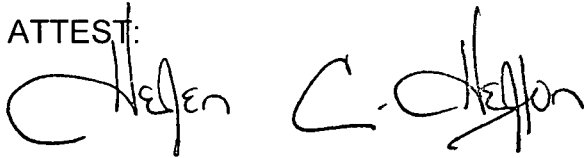
This matter arising upon the motion of the Attorney General of the Commonwealth of Kentucky, by and through his Office of Rate Intervention ("Attorney General"), filed March 4, 1999, pursuant to KRS 367.150(8), for full intervention, such intervention being authorized by statute, and this Commission being otherwise sufficiently advised,

IT IS HEREBY ORDERED that the motion is granted and the Attorney General is hereby made a party to these proceedings.

Done at Frankfort, Kentucky, this 12th day of March, 1999.

By the Commission

ATTEST:



Executive Director



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION
730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KENTUCKY 40602
www.psc.state.ky.us
(502) 564-3940

March 4, 1999

Kendrick R. Riggs
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville KY, 40202

RE: Petition for Confidential Protection
Case No. 99-056

Dear Mr. Riggs,

The Commission has received the joint petition filed February 11, 1999, on behalf of Louisville Gas and Electric Company and Kentucky Utilities Company to protect as confidential the Option Price Data and projected fuel and production costs provided in Appendices D and E of the revenue assessment filed in support of the application for a Certificate of Public Convenience and Necessity. A review of the information has determined that it is entitled to the protection requested on the grounds relied upon in the petition and it shall be withheld from public inspection.

If the information becomes publicly available or no longer warrants confidential treatment, you are required by 807 KAR 5:001, Section 7(9)(a) to inform the Commission so that the information may be placed in the public record.

Sincerely,

A handwritten signature in black ink that reads "Helen C. Helton".

Helen C. Helton
Executive Director

cc: All parties of record.

HV.

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

MAR - 4 1999


PUBLIC SERVICE
COMMISSION

In Re the:

Application of Louisville Gas & Electric Company)
and Kentucky Utilities Company for a Certificate) Case No. 99-056
of Convenience and Necessity for the Acquisition)
of two 164 Megawatt Combustion Turbines)

MOTION TO INTERVENE

Comes the Attorney General, A. B. Chandler, III, pursuant to KRS 367.150 (8) which grants him the right and obligation to appear before regulatory bodies of the Commonwealth of Kentucky to represent the consumers' interests, and moves the Public Service Commission to grant him full intervener status in this action pursuant to 807 KAR 5:001(8).



ELIZABETH E. BLACKFORD
ASSISTANT ATTORNEY GENERAL
1024 CAPITAL CENTER DRIVE
FRANKFORT KY 40601
(502) 696-5453
FAX: (502) 573-4814


CERTIFICATE OF SERVICE AND OF FILING

I hereby certify that this the 4th day of March I have file the original and ten copies of the foregoing Motion to Intervene with the Kentucky Public Service Commission at 730 Schenkel Lane, Frankfort, Ky., 40601, and that I have served the parties by mailing a copy of same, postage prepaid to:

Ronald Willhite
Vice President Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY. 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010 Louisville, KY. 40232 2010

Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, KY. 40202





COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

March 1, 1999

Ronald Willhite
Vice President - Regulatory Affairs
Kentucky Utilities Company
P. O. Box 32010
Louisville, KY. 40232

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
Louisville, KY. 40232 2010

Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, KY. 40202

RE: Case No. 99-056
LOUISVILLE GAS AND ELECTRIC COMPANY

The Commission staff has reviewed your application in the above case and finds that it meets the minimum filing requirements. Enclosed please find a stamped filed copy of the first page of your filing. This case has been docketed and will be processed as expeditiously as possible.

If you need further assistance, please contact my staff at 502/564-3940.

Sincerely,

Stephanie Bell

Stephanie Bell
Secretary of the Commission

SB/sa
Enclosure

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED
FEB 11 1999
PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR THE RESOURCE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

CASE NO. 99-056

PETITION OF LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
FOR CONFIDENTIAL PROTECTION

FILED
FEB 11 1999
PUBLIC SERVICE
COMMISSION

Pursuant to 807 KAR 5:001 Section 7, Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU) (collectively the Companies) petition the Public Service Commission (the Commission) to grant confidential protection to certain information contained in the Companies' Application for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines (the Application). In support of this Petition, the Companies state as follows:

1. The Application contains the testimony of Lonnie E. Bellar, Manager of Generation Systems Planning for the Companies. Exhibit LEB-2 to Mr. Bellar's testimony is a Resource Assessment prepared under Mr. Bellar's direction.



COMMONWEALTH OF KENTUCKY
PUBLIC SERVICE COMMISSION

730 SCHENKEL LANE
POST OFFICE BOX 615
FRANKFORT, KY. 40602
(502) 564-3940

February 16, 1999

Ronald L. Willhite
Director of Regulation
Kentucky Utilities Company
One Quality Street
Lexington, KY. 40507

Greg Ferguson
Regulatory Affairs Coordinator
Louisville Gas and Electric Company
P. O. Box 32010
Louisville, KY. 40232 2010

Honorable Kendrick R. Riggs
Lauren Anderson
Ogden, Newell & Welch
1700 Citizens Plaza
500 West Jefferson Street
Louisville, KY. 40202

RE: Case No. 99-056
LOUISVILLE GAS AND ELECTRIC COMPANY
(Construct) ACQUISITION OF TWO 164 MEGAWATT COMBUSTION TURBINES

This letter is to acknowledge receipt of initial application in the above case. The application was date-stamped received February 11, 1999 and has been assigned Case No. 99-056. In all future correspondence or filings in connection with this case, please reference the above case number.

If you need further assistance, please contact my staff at 502/564-3940.

Sincerely,

Stephanie Bell
Secretary of the Commission

SB/sh

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

FEB 11 1999

PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR THE RESOURCE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

CASE NO. 99-056

PETITION OF LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
FOR CONFIDENTIAL PROTECTION

FILED

FEB 11 1999

PUBLIC SERVICE COMMISSION

Pursuant to 807 KAR 5:001 Section 7, Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU) (collectively the Companies) petition the Public Service Commission (the Commission) to grant confidential protection to certain information contained in the Companies' Application for a Certificate of Public Convenience and Necessity for the Acquisition of Two 164 Megawatt Combustion Turbines (the Application). In support of this Petition, the Companies state as follows:

1. The Application contains the testimony of Lonnie E. Bellar, Manager of Generation Systems Planning for the Companies. Exhibit LEB-2 to Mr. Bellar's testimony is a Resource Assessment prepared under Mr. Bellar's direction.

2. The Companies are seeking confidential protection for Appendices D and E of the Resource Assessment. This information was developed internally by KU and LG&E personnel as part of the Companies' evaluation of whether to acquire the combustion turbines and the alternatives considered.

3. Appendix D to the Resource Assessment contains Call Option Price Data. The projected option prices in this Appendix are the output of an internal tool developed by LG&E Energy Marketing Inc. Knowledge of this information would allow competitors to know in advance whether the Companies are likely to buy or sell options given a certain set of market conditions. This information is confidential and proprietary. Disclosure of this information would provide the Companies' competitors with a commercial advantage in the wholesale market for off-system and bulk power sales. The information would allow such competitors to underbid the Companies or submit maximum bids in comparison to the Companies' bids for the sale of wholesale power.

4. Appendix E to the Resource Assessment contains projected fuel costs and production costs from the simulations run in connection with the Resource Assessment. Disclosure of this information would provide fuel suppliers with the Companies' expectations about the future price of fuel. This would allow such suppliers to take advantage of the Companies' solicitations by increasing their bids to the maximum extent

possible, thereby causing higher fuel prices for the Companies' customers.

5. Since the passage of FERC Order 888 in 1996, a number of new participants have entered the wholesale energy market, including marketers, brokers, clearinghouses, and non-utility producers of power. The FERC has authorized utilities, including the Companies, to charge market-based prices for wholesale power and approved open-access transmission services tariffs. As a result, a competitive wholesale market for bulk and off-system power sales has developed.

6. Under KRS 61.878(1)(c), records confidentially disclosed to an agency which are generally recognized as confidential or proprietary in nature are exempt from public inspection. The information described above constitutes confidential proprietary information, the disclosure of which would provide unfair commercial advantages to the Companies' competitors in the wholesale power market.

7. The Commission's Order issued May 20, 1996 in case no. 96-173, "A Review Pursuant to 807 KAR 5:058 of the 1996 Integrated Resource Plan of Kentucky Utilities Company," granted confidential protection to similar proprietary information.

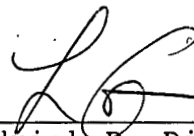
8. The Companies do not object to disclosure of the confidential information, pursuant to a protective agreement, to the Attorney General or other intervenors with a legitimate

interest in reviewing the confidential information for the purpose of intervening in this case.

9. In accordance with 807 KAR 5:001 Section 7, one copy of the Companies' Resource Assessment with the confidential information highlighted and ten copies of the Resource Assessment with the confidential information obscured is being filed with the Commission.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company respectfully request that the Commission grant confidential protection to the information designated as confidential for a period of five years from the date of the filing of this application, or in the alternative, schedule an evidentiary hearing on all factual issues.

Respectfully submitted,



Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202
502/582-1601

John R. McCall
Executive Vice President
General Counsel
Corporate Secretary

Douglas M. Brooks
Senior Counsel Specialist,
Regulatory


Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 10th day of February, 1999.

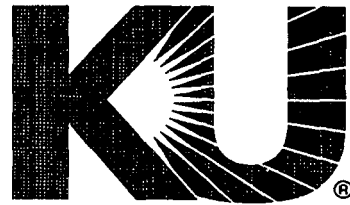
Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202


Counsel for Louisville Gas
and Electric Company and
Kentucky Utilities Company



A SUBSIDIARY OF
LG&E ENERGY



A SUBSIDIARY OF
LG&E ENERGY

RECEIVED

FEB 11 1999

PUBLIC SERVICE
COMMISSION

COMMONWEALTH OF KENTUCKY

BEFORE THE

PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS & ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE)
AND NECESSITY FOR THE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

CASE NO. 99-056



Ronald L. (Ron) Willhite
Vice President - Regulatory Affairs

LG&E Energy Corp.
220 West Main Street
P.O. Box 32030
Louisville, Kentucky 40232
502-627-2044
502-627-2585 FAX

February 11, 1999

Helen C. Helton
Executive Director
Kentucky Public Service Commission
730 Schenkel Lane
P.O. Box 615
Frankfort, KY 40602-0615

**RE: Acquisition of Combustion Turbines by LG&E
Capital Corp.**

Dear Ms. Helton:

Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU") (collectively "the Companies") are applying to the Public Service Commission (the "Commission") for a Certificate of Public Convenience and Necessity for the joint acquisition and ownership of two 164 megawatt combustion turbines. Accompanying the Companies application is a petition for confidential protection for certain information contained in Appendices D and E of the Resource Assessment (Exhibit LEB-2). In accordance with 807 KAR 5:001 Section 7, one copy of the Companies Resource Assessment (Exhibit LEB-2) with the confidential information highlighted in a sealed envelope marked "CONFIDENTIAL" in addition to an original and ten copies of the application and supporting documents with the confidential information obscured is being filed with the Commission.

LG&E Capital Corp. purchased the turbines from Asea Brown Boveri (ABB) last fall, as related to the Commission by letter dated October 30, 1998. The combustion turbines are presently being constructed by Overland Contracting, Inc., a subsidiary of Black & Veatch, under contract with

LG&E Capital. As stated in our prior letter, LG&E Capital will continue to own the combustion turbines in the event the Commission does not grant the requested Certificate to KU and LG&E. However, the Companies' analyses of market conditions and projected load growth show that acquisition of the combustion turbines is the most reasonable, least cost means of meeting the Companies' energy needs for the summer of 1999 and beyond.

The testimony of Bruce Sauer and accompanying exhibits demonstrate that the Companies' native load growth is expected to continue to rise. Our energy shortfall for the summer of 1999 is approximately 470 megawatts. KU's 1996 Integrated Resource Plan (IRP) showed the need for additional combustion turbines as early as 1998; LG&E's 1993 IRP projected adding combustion turbines in 1999 and 2000. In 1997, prior to the merger of their parent corporations, the Companies estimated that they would be able to continue to meet their peak needs by purchasing power on the wholesale market and delay acquiring additional combustion turbines until 2001. However, events of the past year have caused us to re-evaluate this plan. During the summer of 1998, a combination of unusually hot temperatures and transmission constraints revealed a serious shortage of available power in the Midwest. These conditions resulted in prices of as much as \$7500/MWh. Prices averaged \$262/MWh during the month of June and \$149/MWh during the month of July 1998, as compared with prices of \$28/MWh for June and \$59/MWh for July in 1997. The effects of these circumstances on the wholesale market are discussed in the testimony of Mr. James Kasey, which is being submitted as part of this application.

The demand for and price of combustion turbines has risen in conjunction with the demand for power. When the Companies were given a viable opportunity to consider purchasing the turbines in the fall of 1998, we were advised by our outside engineering contractor that no other turbines would be available for delivery to allow in-service dates before mid-2001, or possibly 2002. LG&E Capital Corp. moved quickly to purchase the turbines from ABB, before the price rose even further or the machines simply became unavailable.

Ms. Helen C. Helton
February 11, 1999
Page 3 of 3

The testimony of Lonnie E. Bellar and the Resource Assessment attached as an exhibit thereto explains the alternatives considered by the Companies. The Resource Assessment demonstrates that acquisition of the combustion turbines is the most efficient and reasonable option to meet our system requirements.

In sum, the Companies' goal is to have reliable sources of power to meet our customers' growing energy needs, without subjecting either the Companies or their customers to the volatility of the energy market. Acquisition of the combustion turbines by KU and LG&E is the most efficient and least-cost way of meeting this need.

Final action on this Application is requested of the Commission on or before June 30, 1999.

Very truly yours,

Ronald L. Willhite

Ronald L. Willhite

RLW/md

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS AND ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. ~~99~~056
AND NECESSITY FOR THE ACQUISITION OF TWO)
164 MEGAWATT COMBUSTION TURBINES)

APPLICATION

Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU") (jointly referred to as "the Companies") hereby petition the Public Service Commission ("Commission") to issue an Order pursuant to KRS 278.020 granting the Companies a Certificate of Public Convenience and Necessity for the resource acquisition and ownership of two 164 megawatt combustion turbines. In support of this Application, LG&E and KU respectfully state:

1. Address. LG&E's business address is: 220 West Main Street, Louisville, Kentucky 40202. KU's business address is: One Quality Street, Lexington, Kentucky 40507. The mailing address for both applicants is: P.O. Box 32010, Louisville, Kentucky 40232.

2. Articles of Incorporation. Pursuant to 807 KAR 5:001 § 8(3), certified copies of LG&E's and KU's Articles of Incorporation are on file with the Commission in Case No. 97-300. They are incorporated by reference here.

3. Statement of Business. LG&E and KU are corporations organized pursuant to Kentucky law. LG&E is a utility as that

term is defined in KRS 278.010(3)(a) and (b). KU is a utility as that term is defined in KRS 278.010(3)(a). LG&E provides retail electric service to approximately 360,000 customers and retail gas service to approximately 289,000 customers. KU provides retail electric service to approximately 445,000 Kentucky customers. The Companies are subject to the Commission's jurisdiction as to their retail rates and service.

4. **Acquisition of Combustion Turbines.** LG&E and KU propose to jointly acquire and own two 164 megawatt combustion turbine electric generating units. The units were purchased by LG&E Capital Corp. ("LG&E Capital") from Asea Brown Boveri (ABB) and are being constructed by Overland Contracting, Inc., a subsidiary of Black & Veatch, under contract with LG&E Capital. The machines are scheduled to be completed in July 1999 and to be in service by August 1, 1999. The turbines will be the fifth and sixth units at KU's existing E.W. Brown Generating Station ("Brown Facility") in Mercer County, Kentucky.

5. **Statement of Need.** LG&E's and KU's existing net summer generating capability, including purchased power, is 6520 megawatts. Currently, LG&E's summer system capability is 2559 megawatts. KU's current summer system capability, including 1999 purchases from others, is 3961 megawatts.

A record system peak demand of 2427 megawatts occurred for LG&E on August 25, 1998, hour ending 1600. A record system peak demand of 3559 megawatts occurred for KU on August 25, 1998, hour ending 1600. The peak demand for the summer of 1999

is projected to be 6132 megawatts and will require additional capacity resources to maintain a reasonable reserve margin.

LG&E's and KU's current resource assessment shows that acquisition of two 164 megawatt combustion turbines is the most reasonable least-cost method of providing the Companies with the necessary resources. The additional generating capacity, together with purchased power, will be sufficient to serve the Companies' customers at the forecasted 1999 load level.

The facts LG&E and KU rely on to show that public convenience and necessity require the proposed acquisition are contained in the testimonies and exhibits supporting this Application. Those materials include a discussion of the Companies' current resource assessment, the analyses resulting in the need for this Application, and the alternatives which the Companies considered.

6. **Permits from Public Authorities.** On June 17, 1991, KU submitted to the Kentucky Natural Resources and Environmental Protection Cabinet a statement of environmental compatibility in conformity with KRS 278.025. KU's statement provided information on the environmental impacts of a generating facility consisting of up to eight simple cycle combustion turbines at the Brown Facility. The two which are the subject of this proceeding will bring the total to six. The statement of environmental compatibility contained a description of the proposed facility (i.e. the combustion turbine specifications and a description of the site and its environmental setting), as well as information on the potential environmental impacts of

the proposed facility on air, water, waste, and noise. On October 21, 1991, the Cabinet's Secretary recommended that the Commission issue a Certificate of Environmental Compatibility for the entire Brown Facility. A copy of the letter of recommendation is attached as Application Exhibit 1.

The Companies possess the previously-issued environmental permits necessary to install the fifth and sixth combustion turbines at the Brown Facility. These permits are attached as Exhibit 2 to this Application.

7. Location, Manner, and Cost of Construction. As previously explained, the proposed combustion turbines are being constructed in the existing combustion turbine complex at KU's Brown Facility in Mercer County, Kentucky.

Manner of construction. ABB is providing the combustion turbines and related equipment only. Overland Contracting, the engineer for the project, is procuring the other necessary equipment and is constructing the units. LG&E Capital is overseeing construction of the combustion turbines and performing other necessary construction, such as the water treatment, transmission, substation, and natural gas supply modifications. Copies of pertinent portions of LG&E Capital's contracts with ABB and Overland are attached to this Application as Exhibits 3a and 3b.

Construction costs.

(A) Combustion Turbines	\$91,800,000
(B) Engineering, Balance-of-Plant Procurement and Construction	19,850,000

(C) Fuel Gas Delivery System	
Modifications	645,000
(D) Water Treatment Plant	1,915,000
(E) Service Water System Upgrade	271,000
(F) Substation	600,000
(G) Miscellaneous	1,904,000
(H) Pending Items	4,767,000
(I) Contingency	3,248,000
Total	\$ 125,000,000

There are no similar facilities owned by others in the area of the Brown Facility, so the new construction will not compete with that of other public utilities, corporations, or persons.

8. **Area Maps.** Exhibit 4 to this Application is a map of the Brown Facility. It shows the four combustion turbines currently in place and operating on the site, as well as the planned locations for the fifth and sixth units. There are no like facilities owned by others in the area shown on the map.

9. **Financing Plan.** The applicants are not proposing to finance construction of the new units. LG&E Capital Corp., a subsidiary of LG&E Energy Corp., is financing the purchase and construction of the units. The applicants will finance the acquisition of the two units, subject to being granted a Certificate of Public Convenience and Necessity, through a combination of internally- and externally-generated funds, as shown in Exhibit 5 to this Application.

10. Cost of Operation. LG&E and KU estimate an operating cost of \$469,000 in 1999 and \$2,909,000 for 2000, the first full year of operation. Annual fixed and variable maintenance costs of both generating units are estimated to total \$840,000. Fuel costs are estimated to be 241¢/MBTU for gas and 377¢/MBTU for oil in 1999 (thereafter escalated at an average annual rate of 4.9% and 5.6% respectively).

Electricity output of the two units is expected to be approximately 17 GWH in 1999; will average 126 GWH per year in the first five full years of operation; and could range from 104 to 160 GWH per year. The annual capacity factor on each unit during the first five full years of operation could range from 3.4 to 5.3%, and is expected to average 4.2%.

11. Testimony and Exhibits. Additional facts supporting this Application are set out in detail in the Companies' direct testimonies and exhibits. The following witnesses are submitting direct testimonies and supporting exhibits as part of this Application, and their materials are incorporated by reference into this Application:

- Ronald L. Willhite, Vice President, Regulatory Affairs, Louisville Gas & Electric Company and Kentucky Utilities Company;
- H. Bruce Sauer, Manager, Forecasting & Marketing Analysis, Louisville Gas & Electric Company and Kentucky Utilities Company;
- James W. Kasey, Senior Vice President, LG&E Energy Marketing Inc.; and

- Lonnie E. Bellar, Manager, Generation Systems Planning, Louisville Gas & Electric Company and Kentucky Utilities Company.


12. Acquisition of the Combustion Turbines. The current estimated cost analyses of the need for additional capacity requirements demonstrate that acquiring the two combustion turbines is the least-cost alternative for meeting the Companies' capacity needs and maintaining their joint reserve margin. However, if the Commission denies this Application, LG&E Capital or another non-utility subsidiary of LG&E Energy Corp. will own the two combustion turbines and use these resources for its own business plans as an Exempt Wholesale Generator pursuant to 15 U.S.C. 79z-5a of the Federal Power Act. Under the current FERC policy, LG&E and KU would not be able to purchase power generated from these two machines from any LG&E Energy Corp. affiliate, and no LG&E Energy Corp. affiliate could sell power generated from these two machines to LG&E or KU.

13. Ownership of the Combustion Turbines. If the Commission grants the requested Certificates of Public Convenience and Necessity, the Companies will acquire ownership of the Combustion Turbines in the following ratio: KU - 62%; LG&E - 38%. This ownership ratio was recommended by the Resource Assessment prepared by the Companies' Generation Systems Planning Group, which is attached as an exhibit to Mr. Bellar's testimony. Pursuant to the Power Supply System Agreement, the Companies' Operating Committee met on February 2, 1999 and approved the 62-38 ownership ratio.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company request that, pursuant to KRS 278.020, the Public Service Commission issue an order granting the Companies a Certificate of Public Convenience and Necessity for the joint acquisition and ownership of two 164 megawatt combustion turbines at Kentucky Utilities Company's E.W. Brown Generating Station in Mercer County, Kentucky. Final action on this Application is requested of the Commission on or before June 30, 1999, so that LG&E Capital may transfer the units to LG&E and KU in time to meet the Companies' 1999 load requirements.

Dated at Louisville Kentucky, this 11th day of February, 1999.

**LOUISVILLE GAS AND ELECTRIC
COMPANY
KENTUCKY UTILITIES COMPANY**


Kendrick R. Riggs
Lauren Anderson
OGDEN NEWELL & WELCH
1700 Citizens Plaza
500 West Jefferson Street
Louisville, Kentucky 40202
502/582-1601

John R. McCall
Executive Vice President
General Counsel
Corporate Secretary
Douglas M. Brooks
Senior Counsel Specialist,
Regulatory

Ronald L. Willhite
Vice President, Regulatory Affairs
Louisville Gas & Electric Company
220 West Main Street
P.O. Box 32010
Louisville, KY 40232

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing was served via U.S. mail, first-class, postage prepaid, this 11th day of February, 1999.

Elizabeth E. Blackford
Assistant Attorney General
Public Service Litigation
P. O. Box 2000
Frankfort, KY 40602-2000

Michael L. Kurtz, Esq.
Boehm, Kurtz & Lowry
2110 CBLD Center
36 East Seventh Street
Cincinnati, OH 45202



Counsel for Louisville Gas
And Electric Company and
Kentucky Utilities Company

John F. Nichols, Jr.
SECRETARY



WALLACE G. WILKINSON
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
OFFICE OF THE SECRETARY
FRANKFORT, KENTUCKY 40601
TELEPHONE (502) 564-3350

October 21, 1991

Mr. Lee MacCraken, Executive Director
Public Service Commission
730 Schenkel Lane
P.O. Box 615
Frankfort, Kentucky 40601

Dear Mr. MacCraken:

The Natural Resources and Environmental Protection Cabinet staff has reviewed Kentucky Utilities Company's Statement of Environmental Compatibility for the E. W. Brown Combustion Turbine Generating Facility to be located in Mercer County, Kentucky. No objections to the issuance of a Certificate of Environmental Compatibility were submitted, and we recommend the issuance of such certificate by the Public Service Commission.

In addition, the Division of Water provided several suggestions regarding the permitting of discharges from the proposed facility and the Division for Air Quality provided the status of the construction permit. These comments are provided on the attached sheet.

If you have any questions, please contact Ms. Valerie Hudson, Deputy Commissioner, Department for Environmental Protection at 564-2150.

Sincerely,

John F. Nichols, Jr.
Secretary

Attachment



Additional comments from the Natural Resources and Environmental Protection Cabinet on the Kentucky Utilities Company's Statement of Environmental Compatibility for the E. W. Brown Combustion Turbine Generating Facility:

A. DIVISION OF WATER

- 1) As indicated in Kentucky Utilities Company's Statement of Environmental Compatibility (KU EC), storm water runoff discharges associated with this project will need to be permitted. Modification of the existing site permit, KY0002020, to address any new storm water runoff discharges will be sufficient to address this concern.
- 2) As indicated in the KU EC, any process related discharges associated with this project will need to be permitted. Modification of the existing site permit, KY0002020, to address any new process related discharges will be sufficient to address this concern.
- 3) The Division would note the potential construction of large tanks for the storage of fuel oil. Proper SPCC measures should be incorporated to minimize/eliminate the potential for releases from these tanks and any other material storage areas associated with this project including but not limited to dikes and groundwater protection.
- 4) In reference to items (1) and (2) KU shall ensure that these discharges if to the E. W. Brown ash pond will comply with effluent limitations assigned to outfall 001, KY0002020.
- 5) KU shall ensure that the existing intake structure to be used at this site and the projected increase in the intake will not result in any impingement/entrainment problems beyond that previously reviewed in the most recent issuance of KY0002020.
- 6) The Division would note that careful consideration should be used in evaluating any new intake or discharges to Herrington Lake inasmuch as potential legislation could greatly affect the approval of this or future projects.
- 7) The Division acknowledges the purpose of this project as peaking power. However, in the event that KU projects a need for additional base load (i.e., coal fired unit(s)), adequate future planning by KU should be done well in advance of planned construction given the regulatory environment from which KU must adhere to.

B. DIVISION FOR AIR QUALITY

The Permit Review Branch received a construction permit application from Kentucky Utilities Company on June 14, 1991, and considered it complete on July 12, 1991. The application was for the construction of a combustion turbine generating facility to be located at the existing E. W. Brown Generating Station in Mercer County. The Permit Review Branch has concluded that the proposed construction will comply with all applicable air quality requirements and a preliminary determination has been made to issue the permit to construct. A public notice of the preliminary determination was advertised in the Harrodsburg Herald on September 26, 1991, and the public comment period will expire in thirty days. Any comments received during this period will be considered in the Division's Final Determination to grant or deny the permit.



Natural Resources and Environmental Protection Cabinet
Kentucky Department for Environmental Protection
Division for Air Quality

PERMIT
KENTUCKY UTILITIES COMPANY
One Quality Street
Lexington, Kentucky 40507

RE: Construction of combustion turbines at the E.W. Brown Station located
on Curdsville Road in Mercer County, Kentucky.

Pursuant to your application which was determined to be complete by this office on July 12, 1991, the Natural Resources and Environmental Protection Cabinet issues this permit for the construction of the equipment specified herein in accordance with the plans, specifications, and other information submitted with your application. This permit has been issued under the provisions of KRS Chapter 224.033 and regulations promulgated pursuant thereto and is subject to all conditions and operating limitations contained herein. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses, or approvals required by this Cabinet and/or other state, federal, and local agencies.

POINT OF EMISSION

AFFECTED FACILITY

CONDITIONS

06 (CT04-CT11)

Eight, #2 oil-fired/
natural gas turbines
(Model# ABB GT11N2)

1. 1368 mm/BTU maximum heat input at ISO standard conditions, each.
2. See condition #16.
3. Nitrogen oxide emissions from each turbine shall not exceed 65 ppm at 15 percent oxygen and on a dry basis when burning #2 fuel oil and shall not exceed 42 ppm at 15 percent oxygen and on a dry basis when burning natural gas.

No deviation from the plans and specifications submitted with your application or the conditions specified herein is permitted, unless authorized in writing by the Division for Air Quality. Violations of the terms and conditions contained herein shall be grounds for the Department to seek revocation of this permit. All rights of inspection by the representatives of the Division for Air Quality are reserved. Responsibility for satisfactory conformance with all Air Quality Regulations must be borne by the permittee.

PERMIT NUMBER: C-92-005 (Revised)

Issued this 17th day of May 19 93

FILE NUMBER: 102-2740-0001

John E. Hornback

John E. Hornback, Director

REGION: Bluegrass

Robert W. Logan

Robert W. Logan, Commissioner

COUNTY: Mercer

SIC CODE: 4911

Page 1 of 4 pages

DEP7001 (1-93)

PERMIT NUMBER: C-92-005 (Revised)

PERMIT - Continued

POINT OF EMISSION

AFFECTED FACILITY

CONDITIONS

06 (CT04-CT11) (Cont.)

4. Carbon monoxide emissions shall not exceed 75 lbs/hour and 93.8 tons/year, each.
5. Particulate emissions shall not exceed 67 lbs/hour and 83.8 tons/year, each.
6. Volatile organic compound emissions shall not exceed 20.4 lbs/hour and 25.5 tons/year, each.
7. Beryllium emissions shall not exceed 3.37E-03 lb/hour and 4.21E-03 ton/year, each.
8. Maximum annual operation for each turbine shall not exceed 2500 hours.

GENERAL CONDITIONS:

1. Within 15 days following construction commencement, start-up, and attainment of maximum production rate, or within 15 days following the issuance date of this permit, whichever is later, the owner and/or operator of the affected facilities specified on this permit shall furnish to the Division for Air Quality the following:
 - a) Date when construction commenced. (See General Condition 3)
 - b) Start-up date of each of the affected facilities listed on this permit.
 - c) Date when maximum production rate was achieved. (See General Condition 4)
2. Within 15 days following demonstration of compliance, or within 15 days following the issuance date of this permit, whichever is later, the owner and/or operator of the affected facilities specified on this permit shall furnish to the Division for Air Quality, an application for a permit to operate.
3. Unless construction is commenced on or before eighteen months from the date of this permit or if construction is commenced and then stopped for any consecutive period of 18 months or more, then this construction permit shall become null and void.
4. a) This construction permit shall allow time for the initial start-up, operation, and performance testing of the affected facilities listed herein. However, within 60 days after achieving the maximum production rate at which the affected facilities will be operated, but not later than 180 days after initial start-up of such facilities, the owner or operator shall conduct sulfur dioxide and nitrogen oxide performance tests on the gas turbines and furnish the Division's Frankfort office a written report of the results of such performance tests.

PERMIT NUMBER: C-92-005 (Revised)

PERMIT - Continued

GENERAL CONDITIONS:

- b) Unless notification and justification to the contrary are received by this Division, the date of achieving the maximum production rate at which the affected facilities will be operated shall be deemed to be 30 days after initial start-up.
 - c) At least 30 days prior to the date of the required performance tests, the permittee shall complete and return a Compliance Test Protocol (Form DEP6027) to the Division's Frankfort office. The Protocol form shall be utilized by the Division to determine if a pretest meeting is required. The Division shall be notified of the actual test date at least 10 days prior to the tests.
5. All air pollution control equipment and all air pollution control measures proposed by the application in response to which this permit is issued shall be in place, properly maintained, and in operation at any time the affected facility for which the equipment and measures are designed is operated.
 6. Those affected facilities specified herein whose continued compliance has been demonstrated to the Division's satisfaction are hereby authorized by this permit to operate for 90 calendar days following such compliance demonstration, 90 calendar days following the issuance date of this permit, or for such additional period as may be authorized by 401 KAR 50:035, Section 1(2)(c), whichever is later. Authorization for operation provided by this permit or by 401 KAR 50:035, Section 1(2)(c), shall expire immediately upon notification to the source by the Division that the source operating permit is denied.
 7. Those affected facilities specified herein for which compliance has not been demonstrated during the time period specified by General Condition 4 shall not be operated unless authorized in writing by the Director.
 8. The permittee shall maintain and make available for inspection by this Division all production records necessary to assure that the allowable emission and fuel usage rates will not be exceeded.
 9. In no way does this permit relieve the permittee from compliance with all applicable emission and air quality standards.
 10. An operating permit cannot be issued for the affected facilities listed on this permit unless the remainder of the source's affected facilities are either in compliance, shut down, or on an approved compliance schedule.
 11. Particulate, carbon monoxide, beryllium, nitrogen oxide, sulfur dioxide, and volatile organic compound emissions as measured by reference methods referenced in Regulation 401 KAR 50:015, Section 1 shall not exceed the respective pollutant emission limitations specified herein.
 12. Operation of an affected facility is considered to have commenced at any time air pollutants are generated and emitted to the atmosphere by that affected facility.

PERMIT NUMBER: C-92-005 (Revised)

PERMIT - Continued

GENERAL CONDITIONS:

13. The sulfur content of the fuel fired in the turbines shall be monitored and reported to this Division by methods specified in Section 60:334 of 40 CFR 60, Subpart GG, as referenced by 401 KAR 59:019.
14. Monitoring and reporting requirements for the combustion turbines shall be conducted as specified in Section 60:334 of 40 CFR 60, Subpart GG, as referenced by 401 KAR 59:019.
15. Prior to the start-up of the affected facilities authorized by this permit, the permittee shall demonstrate through existing plant emission reductions, refined modeling, or other measures approved by the Division, compliance with the National Ambient Air Quality Standard for Sulfur Dioxide.
16. The sulfur content of the fuel shall not exceed the following percentage by weight:

<u>Number of turbines operational</u>	<u>Maximum Allowable Percent Sulfur in the fuel</u>
6 or less	0.30 (444 lbs/hr/turbine)
7	0.26 (444 lbs/hr/turbine)
8	0.23 (402 lbs/hr/turbine)

17. **Phased Construction Schedule:**

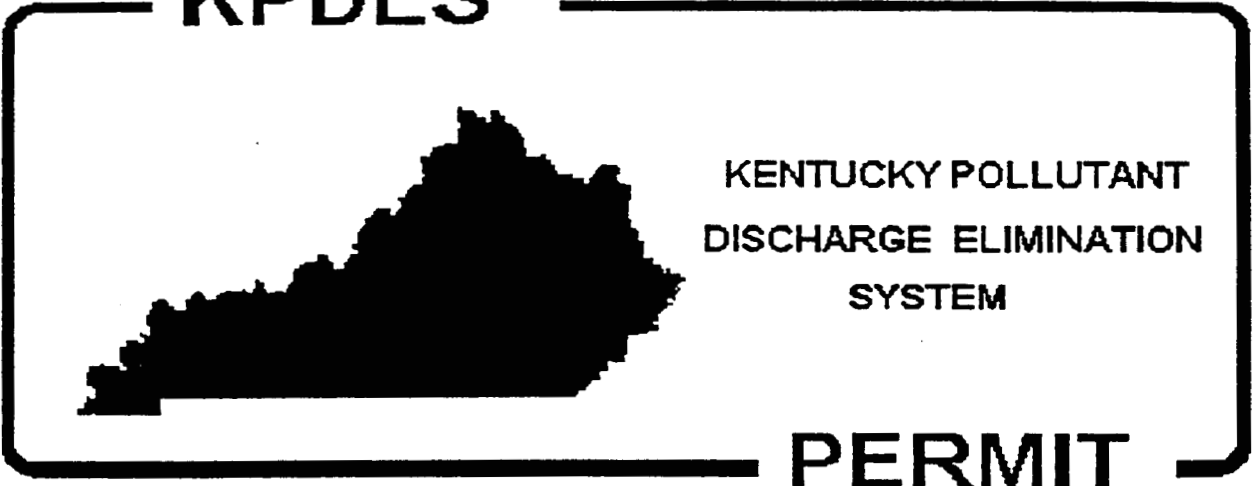
Phase I: Two turbines, April 1994

Phase II: One turbine, April 1995

Phases III - VII: Five turbines, One per year in April 1996, April 1998, April 1999, April 2000, & April 2002

Unless construction of any phase of the project is commenced within eighteen months of the date specified in the schedule, or if construction of any phase is commenced and then stopped for any consecutive period of six (6) months or more, then this construction permit shall be null and void with respect to that phase.

KPDES



KENTUCKY POLLUTANT
DISCHARGE ELIMINATION
SYSTEM

PERMIT

PERMIT NO.: KY0002020

AUTHORIZATION TO DISCHARGE UNDER THE
KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to Authority in KRS 224,

Kentucky Utilities Company
One Quality Street
Lexington, Kentucky 40507

is authorized to discharge from a facility located at

E. W. Brown Station
Curdsville Road
near Burgin, Mercer County, Kentucky

to receiving waters named

Outfalls 001, 002 and 003 are to the Herrington Lake (Dix River) at mile point 3.4.
Outfall 004 is to Outfall 001.
Outfall 005 is the plant intake.

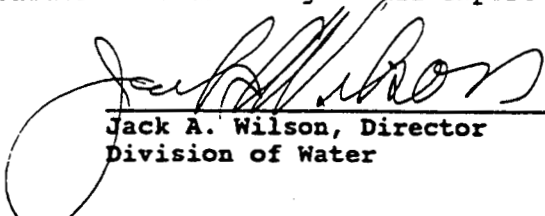
in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, III, IV and V hereof. The permit consists of this cover sheet, and Part I 6 page(s), Part II 1 page(s), Part III 1 page(s), Part IV 2 page(s) and Part V 3 page(s).

This permit shall become effective on **APR - 1 1996**

This permit and the authorization to discharge shall expire at midnight, **MAR 31 2001**

FEB - 5 1996

Date Signed



Jack A. Wilson, Director
Division of Water

Robert W. Logan
Commissioner

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Water, Frankfort Office Park, 14 Reilly Road, Frankfort, Kentucky 40601

PART I
Page I-1
Permit No.: KY0002020

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from outfall(s) serial number(s): 001 - Combined wastewaters of ash pond overflow (ash transport wastes (Outfall 004)).

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS

DISCHARGE LIMITATIONS

Flow (MGD)	Monthly <u>Avg.</u>	Daily <u>Max.</u>
Total Suspended Solids	Report 30 mg/l	Report 64 mg/l
Oil & Grease	5.4 mg/l	5.4 mg/l
Hardness (as mg/l of CaCO ₃)	Report	Report
Total Recoverable Metals ¹	Report	Report
Acute Toxicity	N/A	1.00 TU.

MONITORING REQUIREMENTS

Measurement <u>Frequency</u>	Sample <u>Type</u>
1/Week	Weir
1/Week	Grab
1/Week	Grab
1/Week	Grab
1/Quarter	Grab
1/Quarter	2 Grabs

The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/week by grab sample.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

1. Parameters to be included in Total Recoverable Metals are: Antimony, Arsenic, Copper, and Selenium.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from outfall(s) serial number(s): 002 - Cooling tower blowdown from Units 1 & 2.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS

DISCHARGE LIMITATIONS

MONITORING REQUIREMENTS

	Monthly ---AVG---	Daily ---MAX---	Measurement ² ---FREQUENCY---	Sample ---TYPE---
Flow (MGD)	Report	Report	1/Week	Instantaneous
Discharge Temperature °C(°F)	Report	Report	1/Week	Grab
Free Available Chlorine	0.2 mg/l	0.5 mg/l	1/Week	Multiple Grab ¹
Total Residual Chlorine	0.019 mg/l	0.019 mg/l	1/Week	Multiple Grab ¹
Total Residual Oxidants ³	Report	0.2 mg/l	1/Week	Multiple Grab ¹
Time of Oxidant Addition ³ (min/day/unit)	N/A	120	1/Week	Multiple Grab ¹
Total Chromium	0.2 mg/l	0.2 mg/l	1/Month	Grab
Total Zinc	0.19 mg/l	0.19 mg/l	1/Month	Grab
Priority Pollutants ⁴	Report	Report	1/Year ⁴	Grab

The pH of the effluent shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/week by grab sample.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): nearest accessible point prior to discharge to or mixing with the receiving waters.

- ¹ Multiple grabs shall consist of grab samples collected at the approximate beginning of FAC and TRC or other oxidant discharge and once every 15 minutes thereafter until the end of FAC, TRC, or other oxidant discharge. For the purposes of this permit, the term "daily maximum" as it applies to FAC shall mean the average concentration during any individual chlorine discharge period. Limits for FAC and TRC are applicable to each unit and individual chlorine release period, not to exceed two (2) hours per day.
- ² Sample collection shall be during periods of blowdown. Monitoring shall not be required for FAC, TRC, TRO, Total Chromium or Total Zinc unless compounds containing these constituents are added to the cooling water. When chlorination or addition of oxidants does occur the blowdown from each unit shall be sampled and analyzed.
- ³ Neither free available chlorine (FAC), total residual chlorine (TRC), nor total residual oxidants (TRO) shall be discharged from any unit for more than two (2) hours in any one (1) day and not more than any one (1) unit shall discharge FAC, TRC, or TRO at any one (1) time.
- ⁴ Priority Pollutants means the 126 priority pollutants listed in 40 CFR 423 Appendix A. In lieu of monitoring, the permittee may demonstrate through engineering calculations that the regulated pollutants are not detectable in the final discharge by the analytical methods of 40 CFR 136.
- ⁵ Total Residual Oxidants (TRO) means the value obtained using the amperometric titration or DPD methods for total residual chlorine described in 40 CFR 136. In the event of addition of an oxidant other than chlorine and bromine, the permittee shall receive prior approval from the Division of Water permitting staff before the initial use.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from outfall(s) serial number(s): 004 - Metal cleaning wastes (internal outfall).

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS

Flow (MGD)
 Total Copper
 Total Iron
 pH (standard units)

DISCHARGE LIMITATIONS

Monthly
 ---Avg.---
 Report
 1.0 mg/l
 1.0 mg/l
 Report (minimum)

MONITORING REQUIREMENTS

Daily
 ---Max.---
 Report
 1.0 mg/l
 1.0 mg/l
 Report (maximum)

Measurement
 ---Frequency---
 1/Batch
 1/Batch
 1/Batch
 1/Batch

Sample
 ---Type---
 Calculated
 Multiple Grabs
 Multiple Grabs
 Multiple Grabs

Metal cleaning waste shall mean any wastewater resulting from cleaning (with or without chemical cleaning compounds) any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning. No other wastestreams are permitted to be discharged to the ash pond from Outfall 004 except metal cleaning waste. In accordance with the conditions of the previous permits, the permittee is allowed to discharge the aforementioned metal cleaning wastes directly to the ash pond without limitations or monitoring requirements pursuant to the Jordan Memorandum.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): nearest accessible point prior to commingling with the other wastewaters which discharge to the ash pond.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from outfall(s) serial number(s): 005 - Plant intake.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS

DISCHARGE LIMITATIONS

MONITORING REQUIREMENTS

	Monthly ---AVG.---	Daily ---Max.---	Measurement ---Frequency---	Sample ---Type---
Intake Flow (MGD)	Report	Report	1/Week	Logs
Intake Temperature °C(°F)	Report	Report	1/Week	Grab
Hardness (as mg/l of CaCO ₃)	Report	Report	1/Week	Grab
pH (standard units)	Report	Report	1/Week	Grab

There shall be no evidence of floating solids or visible foam or sheen in other than trace amounts around the intake.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):
 plant intake except that temperature may be monitored at the river pumps.

(ldke)

PART I
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Permit No.: KY0002020

B. Schedule of Compliance

The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

Attain compliance with effluent limitations on the effective date of this permit.

PART II
Page II-1
Permit No.: KY0002020

STANDARD CONDITIONS FOR KPDES PERMIT

The permittee is also advised that all KPDES permit conditions in KPDES Regulation 401 KAR 5:065, Section 1 will apply to all discharges authorized by this permit.

This permit has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal and local agencies.

It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

PART III
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PART III

OTHER REQUIREMENTS

A. Reporting of Monitoring Results

Monitoring results obtained during the previous month shall be summarized for the month and must be reported on a Discharge Monitoring Report Form, postmarked no later than 28th day of the month following the completed reported period.

Division of Water
Frankfort Regional Office
643 Teton Trail, Suite B
Frankfort, Kentucky 40601
ATTN: Mr. Fred Claus

Kentucky Natural Resources and
Environmental Protection Cabinet
Dept. for Environmental Protection
Division of Water
Inventory & Data Management
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

B. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under 401 KAR 5:050 thru 5:085, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of KRS Chapter 224 when applicable.

C. Cooling Water Additives, FIFRA, and Mollusk Control

The discharge of any product registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) in cooling water which ultimately may be released to the waters of the Commonwealth is prohibited, except Herbicides, unless specifically identified and authorized by the KPDES permit. In the event the permittee needs to use a biocide or chemical, not previously reported, for mollusk control or other purpose the permittee shall submit sufficient information, a minimum of thirty (30) days prior to the commencement of use of said biocides or chemicals, to the Division of Water for review and establishment of appropriate control parameters. Such information requirements shall include:

1. Name and general composition of biocide or chemical,
2. 96-hour median tolerance limit data for organisms representative of the biota of the water way into which the discharge shall occur,
3. Quantities to be used,
4. Frequencies of use,
5. Proposed discharge concentrations, and
6. EPA registration number, if applicable.

PART IV
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PART IV

Toxicity Control and Biomonitoring Program

In accordance with Part I of this permit, the permittee shall initiate the series of tests described below within 30 days of the effective date to evaluate wastewater toxicity of this discharge from Outfall(s) 001.

1. Test Requirements

- A. The permittee shall perform a 48-hour static toxicity test with Ceriodaphnia sp. and a 48-hour static toxicity test with fathead minnow (Pimephales promelas). Tests shall be conducted on each of two (2) grab samples taken over a 24-hour period (e.g. discrete sample 1 taken at 9:00am, sample 2 taken at 9:00pm). Tests shall be conducted with appropriate replicates of 100% effluent, a control and a minimum of four (4) evenly spaced serial dilutions of 100% effluent. If the permit limit is greater than 77% (TU_a <1.3), then one (1) dilution must be 100%. For all other conditions, two (2) dilutions must be above the permit concentration. Testing of the effluent shall be initiated within 36 hours of each sample collection. Controls shall be conducted concurrently with effluent testing using a synthetic water. The analysis will be deemed reasonable and good only if control survival is 90% or greater in test organisms held in synthetic water. Any test that does not meet the control acceptability criteria shall be repeated as soon as practicable within the monitoring period (i.e. monthly or quarterly). Noncompliance with the toxicity limit will be demonstrated if the LC₅₀ is less than or equal to 100% effluent.
- B. Tests shall be conducted quarterly or at a frequency to be determined by the permitting authority.

If after at least six (6) months of testing during the initial year, it can be determined that Ceriodaphnia or the fathead minnow is more sensitive, a request for testing only that organism can be made to the Division. Upon approval, that organism can be chosen as representative and all subsequent tests can be conducted on only that organism.

2. Reporting Requirements

Results of all tests conducted with any organism shall be reported according to the most recent format provided by the Division of Water. Test results shall be submitted to the Division of Water with the next regularly scheduled discharge monitoring report.

3. Acute Toxicity

- A. If noncompliance with the toxicity limit occurs (the LC₅₀ is less than or equal to 100% effluent), the permittee must conduct a second test within 10 days of the first failure. This test will be used in evaluating the persistence of the toxic event and the possible need for a toxics reduction evaluation (TRE). The Information and Data Acquisition and Plant Performance Evaluation steps in the TRE process will be initiated at the first failure to assist in determining the cause of toxicity.

If the second test demonstrates noncompliance with the toxicity limit, the permittee will be required to perform either of the following: The Division must be notified of the option selected within five (5) days of the failure of this second test.

PART IV
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1) Accelerated Testing

Complete six (6) tests within 60 days of selection of this option to evaluate the frequency and degree of toxicity. The results of the two (2) tests specified in Section 3.A will be included in these six (6).

If results from two (2) of any six (6) tests, including the regular monthly or quarterly monitoring tests, show a significant noncompliance with the acute limit (≥ 1.2 times the TU_1), or results from four (4) of any six (6) tests show acute toxicity (as defined in 1.A), a Toxicity Reduction Evaluation (TRE) will be required. The Division reserves the right to require a TRE in situations of recurring toxicity.

2) Toxicity Reduction Evaluation (TRE)

If it is determined that a TRE is required, a plan and implementation schedule must be submitted to the Division within 30 days of notification. The TRE shall include appropriate measures such as in-plant controls, additional treatment, or changes in the operation of the wastewater discharge to meet permit conditions. The TRE protocol shall follow that outlined in the most recent edition of EPA's guidance manual for conducting TRE's.

- B. If a violation of the toxicity limit occurs, different or more stringent monitoring requirements may be imposed in lieu of the normal requirements of this permit for whatever period of time is specified by the Division of Water. The Division reserves the right to require additional testing or a TRE in situations of recurring toxicity.

4. Test Methods

All test organisms, procedures and quality assurance criteria used shall be in accordance with Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, EPA-600/4-90/027 (4th edition) or the most recently published edition of this publication.

PART V
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PART V

BEST MANAGEMENT PRACTICES

SECTION A. GENERAL CONDITIONS

1. Applicability

These conditions apply to all permittees who use, manufacture, store, handle or discharge any pollutant listed as toxic under Section 307(a)(1) of the Clean Water Act, oil, as defined in Section 311(a)(1) of the Act, and any pollutant listed as hazardous under Section 311 of the Act and who have ancillary manufacturing operations which could result in (1) the release of a hazardous substance, pollutant, or contaminant in a reportable quantity, or (2) an environmental emergency, as defined in KRS 224.01-400, as amended, or any regulation promulgated pursuant thereto (hereinafter, the "BMP pollutants"). These operations include material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas.

2. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) plan consistent with 401 KAR 5:065, Section 2(10) pursuant to KRS 224.70-110, which prevents, or minimizes the potential for, the release of "BMP pollutants" from ancillary activities through plant site runoff; spillage or leaks, sludge or waste disposal; or drainage from raw material storage. A Best Management Practices (BMP) plan will be prepared by the permittee unless the permittee can demonstrate through the submission of a BMP outline that the elements and intent of the BMP have been fulfilled through the use of existing plans such as the Spill Prevention Control and Countermeasure (SPCC) plans, contingency plans, and other applicable documents.

3. Implementation

The plan shall be modified to implement the requirements of Section B - Specific Conditions as soon as possible but not later than one (1) year from the effective date of the permit.

4. General Requirements

The BMP plan shall:

- a. Be documented in narrative form, and shall include any necessary plot plans, drawings or maps.
- b. Establish specific objectives for the control of toxic and hazardous pollutants.
 - (1) Each facility component or system shall be examined for its potential for causing a release of "BMP pollutants" due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.
 - (2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances which could result in a release of "BMP pollutants", the plan should include a prediction of the direction, rate of flow and total quantity of the pollutants which could be released from the facility as result of each condition or circumstance.

PART V
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- c. Establish specific best management practices to meet the objectives identified under Paragraph b of this section, addressing each component or system capable of causing a release of "BMP pollutants."
- d. Include any special conditions established in Part B of this section.
- e. Be reviewed by plant engineering staff and the plant manager.

5. Specific Requirements

The plan shall be consistent with the general guidance contained in the publication entitled "NPDES Best Management Practices Guidance Document" and shall include the following baseline BMP's as a minimum.

- a. BMP Committee
- b. Reporting of BMP Incidents
- c. Risk Identification and Assessment
- d. Employee Training
- e. Inspections and Records
- f. Preventive Maintenance
- g. Good Housekeeping
- h. Materials Compatibility
- i. Security
- j. Materials Inventory

6. SPCC Plans

The BMP plan may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 151, and may incorporate any part of such plans into the BMP plan by reference.

7. Hazardous Waste Management

The permittee shall assure the proper management of solids and hazardous waste in accordance with the regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1978 (RCRA) (40 U.S.C. 6901 et seq). Management practices required under RCRA regulations shall be referenced in the BMP plan.

8. Documentation

The permittee shall maintain a description of the BMP plan at the facility and shall make the plan available to the Director within one (1) year after the effective date of the permit. Copies of the BMP plan shall be sent to:

Division of Water
Frankfort Regional Office
643 Teton Trail, Suite B
Frankfort, Kentucky 40601
ATTN: Mr. Fred Claus

Kentucky Natural Resources and
Environmental Protection Cabinet
Dept. for Environmental Protection
Division of Water
Inventory & Data Management
14 Reilly Road, Frankfort Office Park
Frankfort, Kentucky 40601

9. BMP Plan Modification

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in the release of "BMP pollutants."

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10. Modification for Ineffectiveness

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of "BMP pollutants" then the specific objectives and requirements under Paragraphs b and c of Section 4, the permit and/or the BMP plan shall be subject to modification to incorporate revised BMP requirements. If at any time following the issuance of this permit, the BMP plan is found to be inadequate pursuant to a state or federal site inspection or plan review, the plan shall be modified to incorporate such changes necessary to resolve the concerns.

SECTION B. SPECIFIC CONDITIONS

Polychlorinated Biphenyls

Pursuant to the requirements of 401 KAR 5:065, Section 4(4) (40 CFR 423.12(b)(2) and 423.13(a)) there shall be no discharge, from any point source, of polychlorinated biphenyl compounds such as those commonly used in transformer fluids. The permittee shall implement this requirement as a specific section of the BMP plan developed for this station.

Storm Water Runoff from Uncontaminated Areas

Management of storm water runoff from uncontaminated areas that discharge to Herrington Lake and the Dix River shall be addressed as a section under the BMP plan.

Periodically Discharged Wastewaters Not Specifically Covered By Effluent Conditions

Kentucky Utilities shall include in this BMP plan procedures and controls necessary for the handling of periodically discharged wastewaters such as, meter calibration, fire protection, hydrostatic testing water, water associated with demolition projects, etc.

GENERAL CONDITIONS OF SALE

AM
JRP

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These General Conditions of Sale are for the sale of Equipment to LGE and the performance of Work for LG&E Capital Corp. for the E.W. Brown Generating Station located in Burgin, Kentucky.

1. GENERAL

These General Conditions of Sale, the Purchase Order and all attachments, documents, appendices, schedules and exhibits attached to them and made a part hereof, as may be amended from time to time in accordance with the terms hereof, shall constitute the entire agreement between Purchaser and ABB (the "Contract") with respect to the sale of the Equipment and performance of the Work. Nothing contained in proposals, correspondence, discussions or negotiations prior to the date of this Contract shall have any effect on this Contract. This Contract may not be changed, amended, or modified except in writing and signed by both parties. Notwithstanding the foregoing, the second full paragraph of the three paragraph letter from C. A. Markel to Chris Broemmelsick dated October 2, 1998, shall remain in full force and effect.

2. DEFINITIONS

- 2.1. ABB means ABB Power Generation Inc., the supplier of the Equipment and the Work hereunder.
- 2.2. Affiliated Companies means a company which directly or indirectly controls, or is controlled by or is under common control directly or indirectly with ABB. At its discretion, ABB may purchase Equipment and material from Affiliated Companies or utilize personnel who are employees of Affiliated Companies in the provision of services hereunder, and may subcontract work to Affiliated Companies, provided that in connection therewith there is no increased cost or liability to Purchaser. Affiliated Companies shall not, however, be under legal obligation to Purchaser in connection with such Equipment, material and services, and Purchaser agrees that it will look solely to ABB as the responsible party in connection with all Equipment, material and services to be furnished hereunder.
- 2.3. Applicable Law means any applicable statute, law, rule, regulation, ordinance, permit, judgment, decision, order or the like issued or enacted by a governmental body of appropriate authority or jurisdiction.
- 2.4. Change in Law means the enactment, adoption, promulgation, amendment or modification by a governmental body after the date of this Contract of any Applicable Law other than with respect to (i) taxes, duties or withholdings which are the responsibility of ABB hereunder or (ii) taxes, levies or withholdings which vary the compensation, benefits or amounts to be paid to or on behalf of or on account of ABB's employees.

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- 2.5. Contractor means Purchaser's engineering and construction contractor which is Overland Contracting, Inc. or such other contractor selected in the future by Purchaser.
- 2.6. Contract Price means the total purchase price for the performance of ABB's obligations, including the Equipment and the Work as set forth in this Contract, as adjusted by Change Orders, in accordance with Article 9.
- 2.7. Defects or Deficiencies shall have the meaning set forth in Section 15.1.
- 2.8. Evaporative Cooler Efficiency Guarantee has the meaning specified in Section 2.5 of Appendix E.
- 2.9. Default Rate has the meaning set forth in Section 5.2(b).
- ~~2.9~~ 2.10. Equipment means any and all equipment, components, materials, machinery, apparatus, items, processes and parts or portions thereof, together with related engineering, technical and other services, to be designed, manufactured or furnished by ABB in accordance with this Contract, including two Units.
- ~~2.10~~ 2.11. Equipment Documents means all drawings, specifications, design documents, manuals, software, instructions, operation, maintenance or other documents necessary for the installation, operation, maintenance, repair, training, modification or alteration of any of the Equipment or any Unit or component thereof.
- ~~2.11~~ 2.12. Final Completion shall have occurred when (i) the Equipment has been delivered and the Work is complete, including all Punch List Items and the completion of any reasonably necessary system tuning and adjustments, (ii) ABB has completed all Performance Tests to be performed by ABB as set forth in Appendix E and has passed all such tests (except to the extent liquidated damages are required to be paid in lieu of passage), (iii) all Performance Guarantees have been achieved (or, when applicable, ABB₇ has paid liquidated damages in lieu thereof in accordance with this Contract), (iv) ABB has paid any other applicable liquidated damages hereunder, (v) Purchaser has received all warranties, schematics, engineering documents and drawings, performance testing data and reports, record drawings and such other Equipment Documents required under this Contract, (vi) final releases and lien waivers required of ABB have been delivered to Purchaser, and (vii) all other conditions, requirements and obligations of ABB have been completed, except to the extent future performance may be required, e.g., warranty (other than in respect of the Starting Reliability Guarantee or the Running Reliability Guaranty) and indemnity obligations.
- ~~2.12~~ 2.13. Functional Tests means, collectively, those tests set forth in Section 3.3 of Appendix E.

- ~~2.13~~ 2.14. Gas means fuel gas as ~~more particularly described~~ meeting the specifications set forth in Attachment 2 to Appendix E.
- ~~2.14~~ 2.15. Guaranteed Exhaust Emissions means Guaranteed Gas Exhaust Emissions and Guaranteed Oil Exhaust Emissions.
- ~~2.15~~ 2.16. Guaranteed Final Completion Date means June 1, 2000.
- ~~2.16~~ 2.17. Guaranteed Gas Exhaust Emissions means the values specified therefor in Table C of Attachment 1 to Appendix E.
- ~~2.17~~ 2.18. Guaranteed Gas Sound Emissions means the values specified therefor in Table A of Attachment 1 to Appendix E.
- ~~2.18~~ 2.19. Guaranteed Net Gas Heat Rate means the values specified therefor in Table A to Attachment 1 of Appendix E.
- ~~2.19~~ 2.20. Guaranteed Net Gas Power Output means the values specified therefor in Table A to Attachment 1 to Appendix E.
- ~~2.20~~ 2.21. Guaranteed Net Heat Rate means the Guaranteed Net Gas Heat Rate and the Guaranteed Net Oil Heat Rate.
- ~~2.21~~ 2.22. Guaranteed Net Oil Heat Rate means the values specified therefor in Table B of Attachment 1 to Appendix E.
- ~~2.22~~ 2.23. Guaranteed Net Oil Power Output means the values specified therefor in Table B of Attachment 1 to Appendix E.
- ~~2.23~~ 2.24. Guaranteed Net Power Output means the Guaranteed Net Gas Power Output and the Guaranteed Net Oil Power Output.
- ~~2.24~~ 2.25. Guaranteed Oil Exhaust Emissions means the values specified therefor in Table D of Attachment 1 to Appendix E.
- ~~2.25~~ 2.26. Guaranteed Oil Sound Emissions means the values specified therefor in Table B of Attachment 1 to Appendix E.
- ~~2.26~~ 2.27. Guaranteed Sound Emissions means the Guaranteed Gas Sound Emissions and the Guaranteed Oil Sound Emissions.
- ~~2.27~~ 2.28. Guaranteed Substantial Completion Date means August 1, 1999.
- ~~2.28~~ 2.29. "including" or "include" shall be deemed to be followed by the words "without limitation."

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- ~~2.29~~ 2.30. Net Gas Heat Rate has the meaning set forth in Section 3.2.1 of Appendix E.
- ~~2.30~~ 2.31. Net Gas Power Output has the meaning set forth in Section 3.1.3.1 of Appendix E.
- ~~2.31~~ 2.32. Net Oil Heat Rate has the meaning set forth in Section 3.2.1 of Appendix E.
- ~~2.32~~ 2.33. Net Power Output has the meaning specified in Section 3.1.3.1 of Appendix E.
- ~~2.33~~ 2.34. Net Oil Power Output means the value specified therefor in Table B of Attachment 1 to Appendix E.
- ~~2.34~~ 2.35. Operator means Kentucky Utilities Company.
- 2.36. Oil means fuel oil meeting the specifications set forth in Attachment 2 to Appendix E.
- ~~2.37~~ 2.35. Oil Firing Equipment mean all portions of the Work or Equipment exclusively related to or used when the Units are fired with oil.
- ~~2.36~~ 2.38. Performance Guarantees means the Guaranteed Net Heat Rate, the Guaranteed Net Power Output, the Guaranteed Exhaust Emissions, the Guaranteed Sound Emissions, the Starting Reliability Guarantee and the Running Reliability Guarantee and the Evaporative Cooler Efficiency Guarantee.
- ~~2.39~~~~2.37~~. Performance Tests means all of the tests set forth in Section 3.0 of Appendix E.
- ~~2.38~~ 2.40. Punch List or Punch List Items means a list prepared prior to Substantial Completion to identify those insubstantial details or mechanical adjustments to the Equipment or the Work which ABB and Purchaser reasonably agree require repair, completion, correction or re-execution, the non-compliance of which will not materially interfere with Purchaser's use, commercial operation, safety or reliability of the Equipment or the Work.
- ~~2.39~~ 2.41. Purchaser means LG&E Capital Corp., provided, however, at Purchaser's option, all or any portion of its rights or obligations hereunder may be performed by an affiliate from time-to-time.
- ~~2.40~~ 2.42. Retainage has the meaning set forth in Section 5.2(d) hereof.
- ~~2.41~~ 2.43. Site means the E.W. Brown combustion turbine generating facility located in Burgin, Kentucky, or such other location as may be designated by Purchaser.

~~2.42~~ 2.44. Subcontractor means any person or entity, including Affiliated Companies, which performs any portion of the Work or provides any portion of the Equipment, including supplies materials, goods or services.

~~2.43~~ 2.45. Substantial Completion shall be deemed to have occurred when (i) all Equipment has been delivered and the Work is complete except for Punch List Items, (ii) the Equipment is mechanically and electrically sound and capable of operation without damage to property or person in the ordinary course of business, (iii) the Performance Tests set forth in Section 3.1 and Section 3.2 of Appendix E have been successfully completed and have demonstrated that the Threshold Net Heat Rate and Threshold Net Power Output have been achieved, (iv) the Guaranteed Gas Exhaust Emissions have been successfully achieved and the CEMS Verification Tests set forth in Section 3.4.2 of Appendix E have been passed, (v) an initial Sound Emissions Test has been performed in accordance with Appendix E and the report has been provided to Purchaser, (vi) ABB has completed necessary system adjustments identified during the start-up and testing process, (vii) the Substantial Completion Documents have been delivered to Purchaser, (viii) special tools necessary for the operation, maintenance or repair of the Equipment, the Work or any part or component thereof have been delivered to Purchaser, and (ix) ABB has completed the training required by Article 8 and other obligations required by this Contract to be performed prior to Substantial Completion.

~~2.44~~ 2.46. Substantial Completion Documents means that portion of the Equipment Documents that Purchaser must have to properly and safely operate, maintain or repair the Equipment or to comply with the warranty provisions thereof or Applicable Law when the Units enter commercial operation upon achieving Substantial Completion.

~~2.45~~ 2.47. Threshold Net Heat Rate means one hundred five percent (105%) of the Guaranteed Net Gas Heat Rate, when calculated in accordance with Section 3.7.3 of Appendix E.

~~2.46~~ 2.48. Threshold Net Power Output means ninety-five percent (95%) of the Guaranteed Net Gas Power Output, when calculated in accordance with Section 3.7.2 of Appendix E.

~~2.47~~ 2.49. Unit means a complete Gas Turbine Generator Unit GT24A with auxiliaries to be delivered by ABB to Purchaser in accordance with this Contract.

~~2.48~~ 2.50. Warranty Periods has the meaning specified in Section 15.1.

~~2.49~~ 2.51. Witness Points has the meaning set forth in Appendix B.

~~2.50~~ 2.52. Work means all services, including labor, training, advising, rework, appropriate to designing, manufacturing, delivering, assisting in installations

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installing, commissioning and testing of the Equipment and the performance of the other obligations of ABB as required by this Contract.

3. DELIVERY

- 3.1. Delivery and Delays. All Equipment will be delivered F.O.B. suitable rail siding nearest to the Site or delivered F.O.B. Site via truck, as specified in Appendix F. The Equipment shall be shipped by ABB in accordance with the schedule set forth in Appendix F. ABB shall provide Purchaser with reasonable advance notice (at least seven (7) calendar days) (and provide updates) of the dates and details relating to each major shipment of Equipment. Purchaser shall have the right to delay or redirect any Equipment shipment on notice to ABB, subject to ABB's right to an equitable adjustment of the terms of this Contract on account thereof. If delivery of the Equipment must be delayed for more than seven (7) calendar days because of (i) Purchaser's failure to perform an obligation hereunder, (ii) Purchaser's inability to accept the shipment or (iii) a Force Majeure Event which affects Purchaser's ability to accept delivery, then to the extent such delay was not due to any cause attributable to ABB or its Subcontractors, ABB may deliver such Equipment to a suitable storage facility provided that reasonable notice is provided to Purchaser at the time of the delay, and within ten (10) calendar days after receipt of such notice, Purchaser shall be entitled to instruct ABB where to deliver the applicable Equipment. All reasonable expenses incurred by ABB as a result of the diverted delivery, including preparation for and placement into storage, handling, inspection, preservation, insurance, storage and removal charges shall be payable by the party responsible for the delay, and if both parties are partially responsible each party shall be liable for such costs in proportion to its responsibility. Purchaser shall pay its share of such costs, after receipt of ABB's invoices reasonably substantiating such costs. When, after reasonable notice to ABB, Purchaser is ready to receive such Equipment at the Site, ABB shall arrange, on behalf of Purchaser (and with the costs therefor to be apportioned as were the other delay costs), for removal of such Equipment from storage and delivery to Purchaser in accordance with the first sentence of this Section 3.1. In any calculation of shipping costs as the result of delayed or redirected shipments, Purchaser shall be credited with the amounts in the Contract Price for the original costs of shipping to avoid double counting of shipping costs charged to Purchaser. To the extent reasonably possible, ABB shall mitigate any increased costs to be borne by Purchaser. Purchaser and ABB agree to cooperate with each other to promptly exchange necessary shipping information and documentation. ABB reserves the right to deliver the Equipment to Purchaser, to the extent reasonable, in multiple installments pursuant to the schedule set forth in Appendix F. To the extent reasonably practicable and consistent with the schedule for completion of its obligations hereunder, ABB shall use all reasonable efforts to fabricate and deliver the Equipment with the objective of minimizing field assembly.

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- 3.2. Inspection. Purchaser shall inspect shipments within seven (7) calendar days after delivery to the Site and promptly report any loss or damage actually observed upon such inspection to ABB, provided, however, the making or failure to make an inspection, acceptance of the applicable Equipment, or the making of any payment thereon shall in no way relieve ABB from its obligation to correct any loss, damage or nonconformity to the requirements of this Contract, notwithstanding Purchaser's knowledge of any loss, damage, nonconformity, the substantiality thereof or the ease of discovery. Purchaser has the right to reject non-conforming Equipment. Any claim for losses, damages or shortages attributable to ABB must be accompanied by ABB's packing slip and full particulars of any such claim.
- 3.3. Shipping Documentation ~~Purchaser's Purchase Order number must be plainly marked on all invoices, packages, bills of lading and shipping orders.~~ Shipments shall conform to the requirements of Appendix H. Purchaser's count or weight, with review of ABB's authorized Site representative, shall be final and conclusive if a shipment is not accompanied by the packing list. Shipping receipts, original bills of lading, express receipts and air bills shall be sent to Purchaser's purchasing department on the date the Equipment is shipped. Equipment shall be packed and crated to ensure against damage from weather and transportation.

4. TITLE AND RISK OF LOSS

- 4.1. Title. All Equipment furnished by ABB hereunder shall become the property of Purchaser and title thereto shall pass to and vest in Purchaser upon shipment of each portion of the Equipment, including shipment to a storage facility pursuant to Section 3.1, to the extent Purchaser has then paid amounts due in accordance with this Contract. Notwithstanding the foregoing, title to a completed Unit shall pass to, vest in and become the property of Purchaser upon payment to ABB of one-half of the Contract Price
- 4.2. Risk of Loss. ABB shall be responsible for and shall bear any and all risk of loss or damage to the Equipment until delivery to Purchaser in accordance with Section 3.1. Risk of loss or damage shall pass to Purchaser upon delivery of the Equipment F.O.B. suitable rail siding nearest to the Site or upon delivery F.O.B. Site via truck, as applicable, or upon delivery to a storage facility as provided in Section 3.1. Notwithstanding the foregoing, any loss or damage, which results from ABB's failure to properly pack or crate the Equipment for carriage shall be borne by ABB or paid for by ABB's insurance carrier.

5. PRICES AND PAYMENTS

5.1. Prices.

- 5.1(a) Pricing. The Contract Price is based on delivery as set forth in Section 3.1, and does not include any charges or services such as Site insurance,

unloading at the Site, Site installation, or Equipment commissioning or start-up, except to the extent expressly provided in this Contract. Selection of a site other than the Site may result in an equitable adjustment of the terms of this Contract.

5.1(b) Taxes and Customs Duties. The Contract Price includes and ABB agrees to pay any state or United States Federal, income, license, privilege, gross receipts, or other like taxes which may now or hereafter be applicable to, measured by or imposed upon or with respect to this transaction. In addition to the Contract Price, ABB will charge state and local sales and use tax, if applicable. In the event the Purchaser deems that the transaction is not subject to sales and use tax, Purchaser shall provide a resale certificate or other exemption documentation based on the state to which the Equipment shall be delivered. Purchaser shall promptly reimburse ABB in accordance with this Contract's payment terms for any state and local service, value added, and any similar taxes properly imposed on the sale of Equipment or Work by ABB to Purchaser. ABB agrees to pay all such taxes which may be assessed by any governmental authority outside the United States, including impositions relating to the exporting or importing of any portion of the Equipment or Work.

5.2. Payment.

5.2(a) Invoices and Retainage. Invoices shall be submitted to Purchaser according to the payment schedule set forth in Appendix C. Invoice amounts for subsequent payments shall be due and payable thirty (30) calendar days from date of receipt of invoices without regard to delays of inspection. Unless otherwise specifically stated all payments and references to prices shall be in U.S. dollars.

5.2(b) Late Payment and Documentation. If Purchaser fails to make a payment when due or improperly withholds amounts due to ABB, interest shall accrue on such overdue amounts at the annual rate equal to the lesser of (i) two percent (2%) in excess of the prime rate as published in The Wall Street Journal or (ii) the maximum rate permitted by law (the "Default Rate"), from the date due until paid, provided, however, in the event more than one prime rate is published, the average of such rates shall be used.

Invoices shall be accompanied by the following, all in form and substance reasonably satisfactory to Purchaser:

- (i) ABB's certification that all Subcontractors have been paid amounts properly due; and
- (ii) Duly executed partial waivers of mechanics' and materialmen's liens to the extent ABB has been paid in accordance with the terms

of this Contract in the form set forth in Appendix G from ABB. ABB shall provide such other information, documents or other materials, including monthly progress reports (A) reasonably required by Purchaser or (B) as may be required by the laws or customs of the jurisdiction in which the Site is located to protect Purchaser from mechanics' or similar liens or claims.

5.2(c) Payment Withholdings. Purchaser may withhold payment or a portion thereof to the extent such payment is disputed, in good faith, by Purchaser or because of:

- (i) failure to carry out the Work or provide the Equipment in accordance with this Contract or any other material breach of this Contract;
- (ii) other amounts due to Purchaser from ABB under this Contract, provided Purchaser has given ABB at least fifteen (15) calendar days' notice thereof; or
- (iii) a lien has been filed by any Subcontractor unless ABB has furnished a bond to protect Purchaser against such lien.

ABB shall be entitled to invoice Purchaser for amounts withheld in the next regular invoice submitted after completion of the applicable Work or provision of such Equipment provided the cause for such withholding has been removed by ABB.

5.2(d) Retainage. As security for the performance of the obligations of ABB under this Contract, Purchaser may withhold ten (10%) percent of each payment of the Contract Price in excess of \$50,000,000 plus that portion of the last payment of the Contract Price which, in the aggregate, shall be an amount equal to ten percent (10%) of the Contract Price. ABB shall be entitled to deliver to Purchaser an irrevocable, unconditional letter of credit in form and substance reasonably acceptable to Purchaser in lieu thereof. Such withholding or the letter of credit in lieu thereof shall constitute the "Retainage." Such letter of credit shall at all times have a stated amount equal to the amount that Purchaser is then entitled to withhold from the Contract Price until ABB has demonstrated achievement of the Performance Guarantees, including applicable guarantees on fuel oil, at which time the stated amount of such letter of credit may be reduced by ABB to an amount equal to five percent (5%) of the Contract Price. Such letter of credit shall be issued by a U.S. bank acceptable to ABB. The stated expiration date of such letter of credit shall be thirty (30) calendar days following the Guaranteed Final Completion Date, but shall be extended and maintained as necessary until thirty (30) calendar days following Final Completion. Cash retainage held by Purchaser or the letter

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of credit provided by ABB shall be returned (less any amounts properly withheld or retained) within thirty (30) calendar days following Final Completion, provided ABB is not in material default hereunder.

- 5.2(e) Reconciliation. As part of Final Completion, ABB shall submit a statement summarizing and reconciling all previous invoices, payments, Change Orders and Retainage.
- 5.2(f) Final Lien Release. As a condition of final payment, ABB shall submit to Purchaser a general release and an affidavit in form and substance reasonably satisfactory to Purchaser that all indebtedness connected with the Work or the Equipment for which Purchaser or its property might in any way be responsible has been paid, waived or otherwise satisfied; but if any such indebtedness has not been satisfied, ABB may furnish a bond reasonably satisfactory to Purchaser to protect it against any such outstanding item of responsibility or obligation. If any lien or claim of any kind or nature whatsoever is filed against Purchaser, any affiliate of Purchaser, the Site, the Work or the Equipment, and such lien or claim arises from or is alleged to arise from any failure of ABB to pay for labor, materials or services furnished to ABB, its Subcontractors or any other indebtedness arising in connection with the Equipment or the Work, and to the extent ABB has been properly paid the amounts required to be paid under the Contract, ABB shall indemnify, defend and hold Purchaser harmless for amounts that Purchaser must pay, in discharging any such lien or claim, including all costs, reasonable attorneys' fees, charges and interest (whether incurred as the result of a third party claim or a claim to enforce this provision). If a lien or claim is filed, ABB shall promptly cause the removal or discharge thereof by posting a bond or in another manner reasonably satisfactory to Purchaser. This provision shall survive any expiration or termination of this Contract.
- 5.2(g) Disputed Invoices. If there is any dispute about any amount owed by one party to the other, the amount not in dispute shall be promptly paid in accordance with the provisions hereof, and any deduction of a disputed amount which is not specifically agreed to by ABB or Purchaser, as applicable, and which is then determined by mutual agreement or otherwise to have been improperly withheld shall be promptly paid by Purchaser or ABB, as applicable, together with interest at the Default Rate from the date such amount otherwise would have been payable to the date of payment.
- 5.2(h) Payment of Subcontractors. Subject to any good faith dispute provisions in the applicable subcontract and to Sections 5.2(c) and 5.2(f) hereof, ABB shall promptly pay each Subcontractor the amount to which such Subcontractor is entitled with respect to the Work or the Equipment. Purchaser shall have no obligation to pay or to see to the payment of any moneys to any Subcontractor except as may otherwise be required by law.

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- 5.3 System of Accounts. For accounting purposes only, ABB shall furnish Purchaser a cost breakdown of the Contract Price in accordance with the system of accounts established by Purchaser, which has been designed in conformance with the uniform system of accounts prescribed by the Federal Energy Regulatory Commission and in accordance with Kentucky Public Service Commission regulations. The sum of the items listed in ABB's price breakdown shall equal the Contract Price. Overhead and profit shall not be listed as separate items.

6. PURCHASER OBLIGATIONS

- 6.1 Purchaser shall be obligated to complete installation of the Equipment (other than minor portions of such work which do not have a material adverse effect on ABB's ability to perform its obligations hereunder) on or prior to the schedule set forth in Appendix G. The Equipment will be installed in material compliance with the Engineering Documents that have been made available to Purchaser on a timely basis and good construction practices. ABB employees on the Site shall inform Purchaser of any non-conformity with these requirements that are observed by such employees in order for Purchaser to promptly correct any such non-conformity. During commissioning of the Units, Purchaser shall provide ~~natural~~ gas Gas, Oil, demineralized water, potable water, disposal of waste water from the Equipment, electrical power and the first fill of required fluids, in appropriate quantities at the conditions specified in this Contract. ABB shall provide sanitary waste disposal as is necessary for ABB and its Subcontractors as well as start-up spare parts. Purchaser shall provide access to the Equipment to ABB without undue interference under the circumstances to enable ABB to perform its obligations hereunder. Purchaser shall also provide labor, operations and maintenance personnel as required to commission the Equipment. Purchaser shall perform any of its other obligations expressed in this Contract, the delay of which would delay or prevent ABB's performance hereunder. If Purchaser shall fail to perform its material obligations as required hereunder and such failure prevents or delays ABB from performing its obligations, ABB shall be entitled to an equitable adjustment to the Contract Price and/or the time for performance on account thereof.

7. BACKCHARGES

- 7.1. Non-Conformance. In the event the Equipment or the Work furnished by ABB under this Contract is found not to be in conformance with requirements of this Contract, including plans or specifications set forth in Appendix B, it remains the responsibility of ABB to promptly correct any such deficiency. Failure of Purchaser to discover such deficiencies shall in no way relieve ABB of its responsibility during the term of this Contract up through the expiration of the Warranty Period to promptly make such modifications so as to minimize delay and/or damage to other Equipment and the Work.

7.2. Purchaser Rights. If upon being notified by Purchaser of non-conforming or defective Equipment or Work and having been requested to correct the defective Equipment or Work in an expeditious manner, ABB states its inability or unwillingness to comply, or refuses to, or does not promptly and diligently proceed to correct the non-conforming or defective Equipment or Work in an expeditious manner appropriate to Purchaser's circumstances, then Purchaser shall proceed to rectify the situation by the most expeditious means available to it appropriate to the then existing circumstances and to backcharge ABB for the reasonable cost thereof. When forced to proceed hereunder, Purchaser will invoice ABB for actual costs incurred (which amounts are due within thirty (30) calendar days of the receipt of the invoice) or withhold such sum. ABB reserves the right to contest the validity and amount of any backcharge work undertaken by Purchaser pursuant hereto.

7.3. Charges. The cost of backcharge work shall include:

- a-(a) Incurred direct craft labor and field non-craft labor costs, plus fifty percent (50%) for payroll taxes, insurance and fringes.
- b-(b) Incurred net delivered material costs plus five percent (5%).
- c-(c) Incurred subcontractor costs directly related to performing the corrective action plus ten percent (10%) markup.
- d-(d) Equipment and total rentals at prevailing rates in the Site area plus ten percent (10%) markup.
- e-(e) Incurred home office engineering and drafting at \$80 per jobhour plus fifty percent (50%) markup, plus computer charges as applicable.

8. TRAINING

- 8.1. Program. ABB shall develop and implement a training program for Purchaser's personnel in accordance with Appendix B.
- 8.2. Documentation. ABB shall prepare and provide to Purchaser appropriate training manuals and other documentation necessary for the operation, maintenance, repair, modification or alteration of the Equipment, including any Unit or component thereof in accordance with the requirements of Appendix B.

9. CHANGES

- 9.1. Changes by Purchaser. Purchaser shall have the right at any time to make, in writing, changes in the Equipment or the Work, including changes in designs and specifications, delivery schedule, method of shipment or packing, place of delivery or additions to or deletions from the quantities specified in Appendix B ("Change"). If any such Change causes an increase or decrease in the cost of or

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the time required for performance of any part of the Equipment or the Work or affects the Performance Guarantees or other obligations of ABB under this Contract, an equitable adjustment shall be made to the terms of this Contract by written amendment executed by the parties hereto ("Change Order"). ABB shall respond to Purchaser's Change requests as promptly as possible but not later than ten (10) calendar days after receipt (unless the parties reasonably and mutually agree to extend such time), providing ABB's reasonably substantiated assessment of the changes to the Contract Price, the schedule and other provisions of the Contract that arise from such Change. ABB shall utilize its reasonable best efforts to finalize any Change Order hereunder as promptly as possible. However, nothing in this Section shall excuse ABB from promptly proceeding with performance of such Change.

9.2. ABB Changes. ABB shall be entitled to an equitable change to the Contract for the following occurrences, provided that ABB asserts the occurrence of said events to Purchaser in writing within the earlier of ten (10) calendar days after the discovery thereof or ten (10) calendar days after they should have been discovered and within twenty (20) calendar days thereafter delivers to Purchaser documents and other relevant material substantiating the occurrence and the requested Change:

- (a) a Force Majeure Event as set forth in Article 13 has occurred provided that any Change Order shall be subject to the provisions of Article 13;
- (b) Purchaser, Contractor, or parties under Purchaser's control have failed to fulfill Purchaser's obligations hereunder to the extent any such failure adversely impacts ABB's ability to fulfill its material obligations under this Contract, except to the extent such delay arose from the fault or negligence of ABB or its Subcontractors;
- (c) modifications necessitated by the presence of hazardous waste existing at the Site or modifications resulting from hazardous waste generated by anyone other than ABB or its Subcontractors;
- (d) a Change expressly contemplated by the terms of this Contract; or
- (e) a change by Purchaser of its construction contractor from Overland Contracting, Inc. (or any affiliate thereof), which change materially delays ABB or causes ABB to re-perform Work required under this Contract.

Purchaser agrees to respond promptly but not later than ten (10) calendar days after receipt of ABB's claim. Purchaser shall be entitled to request additional reasonable information or documentation from ABB in connection with any such claim.

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ABB shall use reasonable efforts to minimize the amount or potential adverse impact of the changes that may result from said occurrences.

10. HAZARDOUS CONDITIONS

10.1. Responsibility. It is understood and agreed by the parties that nothing herein shall be interpreted as placing any responsibility or liability on:

- (a) ABB for pre-existing Site conditions related to pollution, contamination, hazardous waste, asbestos or toxic materials or for the generation, placement, emission, release, threatened release or disposal of such substances unless ABB aggravates or contributes to such conditions; or
- (b) Purchaser for pollution, contamination, hazardous waste, asbestos or toxic material introduced to the Site by ABB or its Subcontractors including the generation, placement, emission, release, threatened release or disposal of such ABB substances introduced substances by ABB or its Subcontractors unless Purchaser aggravates or contributes, to such conditions

10.2. Indemnity. Purchaser shall protect and indemnify ABB and its Subcontractors against any and all claims or liabilities within the scope of Section 10.1(a) above; and ABB shall protect and indemnify Purchaser against any and all claims or liabilities within the scope of Section 10.1(b) above.

10.3. Notice. Prior to a shipment of Equipment, ABB will give notice to Purchaser if any Equipment supplied hereunder is deemed to be hazardous under Applicable Law. ABB will furnish appropriate instructions for shipping, handling, safety exposure, and disposal for any hazardous materials supplied. ABB will provide Purchaser with all Material Safety Data ("MSD") sheets for all hazardous items.

11. LAWS AND REGULATIONS

11.1. Compliance with Law. ABB agrees to perform its Work and provide the Equipment in compliance with Applicable Law in connection with the production, sale and delivery of the Equipment and the performance of the Work, provided however, with respect to local or municipal laws applicable to the jurisdiction in which the Site is located, ABB shall only be liable for failure to comply with such laws if and to the extent that Purchaser has made ABB aware of their existence and application to the Equipment or the Work. ABB further agrees that the Equipment will be designed to be capable of complying with Applicable Law, subject to Section 11.3.

11.2. Laws Applicable. All laws, regulations and design codes expressly incorporated herein shall be those in effect on the date of this Contract. In the event of any subsequent Change in Law, ABB assumes no responsibility for compliance therewith unless an appropriate Change Order is issued pursuant to Article 9.

- 11.3. Emissions. ABB is not responsible for compliance of the Equipment with Applicable Law relating to air or sound emissions. ABB's only obligations with respect to air and sound emissions is to comply with the Performance Guarantees with respect thereto.
- 11.4. Permits. Nothing contained herein shall be construed as imposing responsibility or liability upon ABB for obtaining permits, licenses or approvals from, or to have the Equipment or the Work comply with laws, codes or regulations (except as otherwise expressly provided below and except for the warranties and guarantees provided in this Contract), of any environmental or governmental authority required in connection with the supply (other than the manufacture and sale), erection or operation of the Equipment or the performance of the Work, except business licenses, contractor's license or other licenses or approvals typically required of an equipment manufacturer or supplier as may be required in the name of ABB or its Subcontractors to support its or their business activities. ABB shall cooperate with Purchaser and give reasonable assistance to support Purchaser's permitting activities, including discussions and applications to government authorities, ~~provided, however, ABB shall not be obligated to expend more than \$10,000 in connection with the provision of such support.~~
- 11.5. Site Restrictions. ABB will confine its operations at the Site to areas specified by Purchaser and Contractor and acknowledges that it and its Subcontractors will obey Site regulations of Contractor and the Site Operator. ABB will not unreasonably interfere with construction activities or ongoing operations on the Site.

12. INSPECTION

ABB shall comply with the standards of quality specified in this Contract in addition to prudent industry practices in the electric power producing industry. Provided ABB receives reasonable prior notice thereof, Purchaser and Contractor shall be provided reasonable escorted access to ABB's (and, if applicable, its Subcontractors') manufacturing facilities in order to observe and visually inspect, the manufacturing of the Equipment and the performance of the Work and witness any tests set forth in Appendix B. Neither completion of manufacturing or performance of the Work nor shipment of any part will be delayed to accommodate such observation, inspection or witnessing. For agreed Witness Points, ABB will provide ten (10) calendar days advance notice to Purchaser and Contractor. If ABB does not receive written confirmation that Purchaser or Contractor will attend, or if Purchaser, or Contractor fails to appear at the time of the test/inspection mentioned in the notification, ABB shall be entitled to proceed in their absence.

13. FORCE MAJEURE

- 13.1. Force Majeure Events. A delay in or failure of performance by either party shall not constitute a default in such party's obligations hereunder, including the consequences thereof, to the extent that such delay in or failure of performance

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results from a Force Majeure Event. For purposes of this Contract, a Force Majeure Event shall mean Acts of God, fires, floods, earthquakes, acts of the government, severe weather (which adversely affects critical path activity), insurrection or riot, embargo, unavailability of transport, Changes in Law, strikes or other labor disturbances, and other events that are beyond the reasonable control of the party affected thereby, despite said party's reasonable best efforts to prevent, avoid, delay or mitigate the effect of such acts, causes, events or occurrences. Notwithstanding the foregoing, a Force Majeure Event shall not include the following events, causes, conditions or circumstances except to the extent such events, causes, conditions or circumstances giving rise to such late delivery are directly due to the occurrence of an independent condition, event or circumstance described in and meeting the conditions of the full definition of a Force Majeure Event:

- (a) late delivery of the Equipment or performance of the Work caused by congestion at ABB's (and, if applicable, any Subcontractor's) plant or elsewhere, oversold market conditions, inefficiencies, transportation delays (including delays or unavailability of a Schnabel car), currency or exchange risks; or
- (b) late performance by ABB (or any Subcontractor) caused by a shortage of ABB's or any Subcontractor's supervisors, labor, equipment or materials; or late delivery to or by ABB or any Subcontractor of materials, Equipment or other parts of the Work; or
- (c) machinery or equipment breakdown of ABB (or any Subcontractor);
- (d) weather that does not adversely impact critical path activity; or
- (e) general economic conditions or increased costs for materials, labor or services.

Notwithstanding anything to the contrary herein, strikes or labor disturbances by employees of ABB or any of the Affiliated Companies shall not constitute a Force Majeure Event entitling ABB to any relief under this Contract other than an extension of the time for performance to the extent that such delays impact critical path activity that cannot feasibly be mitigated using ABB's reasonable best efforts, including overtime and double shifts.

- 13.2. Notification. The party encountering the Force Majeure Event shall promptly notify the other party of any Force Majeure Event and shall keep the other party informed as to any new developments pertaining to such Force Majeure Event. The party encountering a Force Majeure Event shall use all economically reasonable efforts to minimize the adverse effects of such Force Majeure Event.

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The party encountering a Force Majeure Event shall be entitled to an equitable adjustment of the Contract schedule necessary to overcome the effects of such Force Majeure Event. Notwithstanding the foregoing, but except as otherwise provided herein, in no event shall either party be relieved of its obligations to pay amounts due and owing under this Contract provided, however, that the payment schedule shall be equitably adjusted to reflect the extent that progress in the performance of the Work (including provision of the Equipment) has been delayed or prevented by the Force Majeure Event. ABB shall be entitled to a Change pursuant to Article 9 for an equitable adjustment of the Contract Price and the payment schedule to reflect the impact of such Force Majeure Event.

13.3. Force Majeure Affecting Purchaser. If a Force Majeure Event prevents or delays the performance of Purchaser's obligations, including its ability to accept delivery of all or a portion of the Equipment or performance of the Work, Purchaser may:

- (a) exercise its right to assign this Contract to a third party pursuant to the provisions of Article 21; or
- (b) require ABB to continue performance of its obligations, provided, however, if all or a portion of the Equipment cannot be accepted by Purchaser, ABB shall ship such Equipment as and when ready, subject to the notice provisions of Section 3.1 (using due care to minimize multiple shipments) to a storage facility specified by Purchaser in consultation with ABB. In such event all of the Equipment placed in storage shall be stored in accordance with the reasonable standard instructions of ABB applying, as appropriate, to short or long-term storage. When the Purchaser is able to accept delivery, Purchaser will notify ABB and ABB will arrange shipment to the Site. At such time as the Equipment is delivered to the Site, Purchaser shall pay the cost of placing the Equipment in new and clean condition and ABB shall commence performance of its remaining obligations, including passage of the Performance Guarantees as contemplated by this Contract. ABB shall be entitled to an equitable Change to the extent that its cost or the time for its performance has been adversely affected. If such delay exceeds, in the aggregate, three hundred sixty-five (365) calendar days, Purchaser shall release or return the Retainage (less any amounts properly withheld or retained) without in any way limiting ABB's obligations to otherwise perform in accordance with this Contract, or Purchaser's rights or remedies. If such delay shall exceed three (3) years in the aggregate, ABB shall be released of its obligation to repair or correct Defects or Deficiencies during any Warranty Period; or
- (c) accept the Equipment that Purchaser is able to accept and direct ABB to ship any other Equipment that is ready for shipment to a storage facility specified by Purchaser in consultation with ABB. Shipments of Equipment placed in storage shall be stored at the Purchaser's expense, in accordance with the reasonable standard instructions of ABB applying, as appropriate,

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to short or long-term storage. Purchaser shall also be entitled to direct ABB to further suspend performance of this Contract in whole or in part. ABB shall be entitled to an equitable adjustment of the Contract Price on account thereof. Purchaser may on reasonable notice to ABB require ABB to resume performance of its suspended obligations under this Contract promptly but consistent with ABB's then existing scheduling commitments. Purchaser shall pay for the cost of putting any stored Equipment back in new and clean condition and for such other reasonable costs attributable to such suspension. ABB agrees to mitigate such costs to the maximum extent reasonable. Purchaser shall be offered the opportunity, if, upon its request for suspension, cancellation charges are to be assessed by ABB Subcontractors, to selectively agree to continue to pay for the completion of such Equipment to minimize the cost of suspension; or

- (d) terminate this Contract pursuant to Section 20.1 and pay the cancellation charges set forth in Appendix D, which amounts shall be subject to mitigation by ABB, less all reasonable costs and expenses incurred by ABB, in connection with the resale of all or a portion of the Equipment or the Work.

13.4. Force Majeure Affecting ABB. If a Force Majeure Event prevents or delays the performance of ABB's obligations hereunder, including its ability to design, manufacture or supply all or any portion of the Equipment:

- (a) ABB shall be entitled to an equitable adjustment of the terms of this Contract as a consequence of the adverse impact on ABB of such Force Majeure Event for up to, in the aggregate, three hundred sixty-five (365) calendar days of delay. ABB shall mitigate delay impacts to the maximum extent possible.
- (b) After three hundred sixty-five (365) calendar days of delay, in the aggregate, ABB shall bear the costs of delay incurred after such three hundred sixty-five (365) calendar days and Purchaser shall have the right to terminate this Contract pursuant to Section 20.1 hereof.
- (c) At such time as performance of ABB's obligations hereunder is no longer delayed or prevented by a Force Majeure Event and, provided that not more than three (3) years, in the aggregate, of delay caused by Force Majeure Events has occurred, Purchaser may direct ABB to complete its unfulfilled obligations under this Contract. However, ABB shall not be obligated to complete such obligations if the performance of such obligations is no longer within the reasonable capability of ABB to perform.

- (d) After three hundred sixty-five (365) calendar days of delay in the aggregate, ABB shall be entitled to terminate this Contract, give Purchaser a full refund of all amounts heretofore paid to ABB, and then to take possession of any Equipment or Work previously provided to Purchaser under this Contract, provided, however, if Purchaser has received a completed Unit, and ABB continues to perform all obligations of this Contract with respect to such Unit, Purchaser's right to a refund shall apply only to amounts paid to ABB to the extent exceeding fifty percent (50%) of the Contract Price.

14. COOPERATION

- 14.1. Construction. ABB acknowledges that the Equipment is being purchased by Purchaser for the installation at the Site and that Purchaser will engage Contractor to undertake certain of Purchaser's obligations hereunder such as the Site engineering and construction, as well as the commissioning, start-up and testing of the Equipment in connection therewith. ABB will cooperate with Purchaser and Contractor and coordinate its activities to the maximum extent reasonable to enable Contractor to complete its work expeditiously.
- 14.2. Equipment Documents. Purchaser shall be entitled, but not obligated, to review and comment upon the Equipment Documents. ABB shall also submit the documents specified in Appendix J, by the dates specified therefor, for the review and comment by Purchaser and/or the Contractor. ABB's failure to provide documents identified as "Critical" in Appendix J in a timely manner shall obligate ABB to pay liquidated damages in accordance with Section 29.1(a).

15. WARRANTY

- 15.1. Warranty. ABB warrants that upon shipment of the Equipment to Purchaser and upon performance of any applicable Work, Purchaser shall have good and marketable title (subject to Section 4.1) to the Equipment and the Equipment and Work will (i) be free from errors, defects, or damage in design, material and workmanship; (ii) be new unless otherwise agreed to by the parties in writing; (iii) conform to Applicable Law and the requirements of this Contract. If, within a period of twelve (12) months from (x) the earlier to occur of (A) Substantial Completion with respect to all Work and Equipment other than Oil Firing Work and Equipment, or (B) thirty (30) months from the last delivery of all Equipment other than Oil Firing Equipment, and (y) (C) Final Completion with respect to the Oil Firing Work and Equipment or (D) thirty (30) months from the last delivery of all Equipment including Oil Firing Equipment, whichever occurs first (the "Warranty Periods"), deviations from the above-described requirements ("Defects" or "Deficiencies") in the Work or Equipment are found, ABB shall, at its expense, immediately proceed to correct, repair, modify or replace such Defect or Deficiency, including repair, disassembly, removal, transportation, reassembly or reperformance and as further provided in Section 15.5, after being given notice

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thereof and shall demonstrate that such Defect or Deficiency has been properly corrected. Repairs or replacements pursuant to warranty shall not renew or extend the Warranty Periods, provided, however, that any such repairs or replacement of Equipment or reperformance of Work or parts thereof shall be warranted for the time remaining under the Warranty Periods or one (1) year from installation, whichever is longer, provided that such warranties shall expire forty-two (42) months from the last delivery of all Equipment. If, after the applicable Warranty Periods have started, the Work or delivery of the Equipment is suspended or delayed as a result of a Force Majeure Event (subject to Section 13) or the negligent or willful actions or omissions of ABB, the above-referenced twelve (12), thirty (30) and forty-two (42) month periods shall be extended for an amount of time equal to the time of such suspension or delay.

15.2. Breach of Warranty. If at any time prior to the expiration of the applicable Warranty Period, Purchaser shall discover any failure or breach of ABB's warranties, ABB shall, upon prompt written notice from Purchaser, and in any event within sixty (60) calendar days after the end of the applicable Warranty Period, and at ABB's sole cost and expense, immediately proceed to correct any Defects or Deficiencies. ABB shall use its reasonable best efforts to remedy any such failure or breach so as to minimize revenue loss to Purchaser and to avoid disruption of Purchaser's (or any of its affiliates') operations at the Site. Purchaser will use reasonable efforts to make the Equipment available for such corrections. If ABB has notified Purchaser of the need for access to the affected Equipment, is ready to perform corrective work at the Site, and Purchaser is unwilling to provide such access, then if and to the extent it is determined that such delayed access caused significant damage to the Equipment, Purchaser shall pay the costs incurred by ABB to correct the additional damage to the Equipment as a result of such delayed access, which costs ABB shall use reasonable efforts to mitigate. In the event ABB fails to initiate and diligently take steps to pursue corrective action within five (5) calendar days of ABB's receipt of Purchaser's notice and continuously pursue such correction thereafter, Purchaser may undertake or arrange such corrective action, and ABB will pay and be responsible for Purchaser's costs of the warranty repair, which costs Purchaser shall use reasonable efforts to mitigate. Any correction undertaken or arranged by Purchaser shall not limit or void ABB's warranty, provided any such correction is in accordance with ABB's reasonable recommendations or, in the absence thereof, accepted and recognized standards and practices of the utility generation industry.

15.3. Spare Parts. Spare parts and other components which comprise a portion of the Equipment which ABB is to provide to Purchaser hereunder, including portions of the Equipment related to the operation and function of a Unit when fired by oil, shall be warranted against Defects or Deficiencies for a period of twelve (12) months from first use by Purchaser or twenty-four (24) months from delivery whichever first occurs.

- 15.4. OSHA. ABB warrants that the Equipment and Work will comply with the relevant standards of the Occupational Safety and Health Act of 1970 ("OSHA") and the regulations promulgated thereunder as of the date of this Contract.
- 15.5. Repairs and Corrections. Purchaser shall provide working access to the Units. ABB will provide at its expense any required disassembly and reassembly of the Equipment, all labor and other services necessary to properly repair or correct the Defects or Deficiencies, including any necessary assembly or disassembly of the Units and recommissioning as reasonably necessary or appropriate as a consequence of the occurrence of the Defect or Deficiency and to restore a safe and operational Unit(s) to Purchaser. Purchaser will provide craft labor under the supervision of ABB, if it is reasonably available to Purchaser, for such repair and correction efforts. If such labor is not reasonably available to Purchaser, ABB shall supply it.
- 15.6. Limitations. These warranties shall not apply to a Defect or Deficiency to the extent caused by (a) improper repairs or alterations by persons other than by ABB or any Subcontractor of its Subcontractors; (b) misuse, negligence or accident by persons other than ABB or any Subcontractor of its Subcontractors; (c) installation, commissioning or use in a manner contrary to ABB's operation and maintenance manual provided to Purchaser or written instructions by ABB's technical advisers; or (d) improper operation or maintenance of the Equipment by Purchaser or its use in association with other equipment of Purchaser; or the alteration of the Equipment by any party other than ABB or any Subcontractor of its Subcontractors causing a violation of any OSHA standard. The validity of warranties and remedies set forth herein shall not be affected by the causes listed in this Section 15.6 to the extent that such causes do not relate to the warranty claim. Without in any way limiting the import of the the previous sentence, in the event Purchaser utilizes fuel gas or fuel oil in the Units which fails to conform to the requirements of Gas or Oil, as the case may be, and to the extent any Defect or Deficiency is caused thereby, ABB shall not be liable to Purchaser pursuant to Section 15.2 hereof to the extent such Defect or Deficiency is caused by the use of fuel that does not conform to the requirements of Attachment 2 to Appendix E. The use of fuel that fails to conform to such specifications shall not otherwise limit or invalidate ABB's warranty hereunder.
- 15.7. Year 2000 Compliance ABB warrants that any computer product, application or system provided hereunder ("Product") is Year 2000 Compliant. As used in this warranty, the term "Year 2000 Compliant" means that the Product, when configured and used according to the documented instructions, will, without manual intervention or interruption:
- (a) Correctly handle and process date information before, during and after January 1, 2000, accepting date input, providing date output and performing calculations, including but not limited to sorting and sequencing, on dates or portions of dates;

- (b) Function according to the documentation during and after January 1, 2000 without changes in operation resulting from the advent of the new century;
- (c) Where appropriate, respond to two-digit date input in a way that resolves any ambiguity as to century in a disclosed, defined and predetermined manner;
- (d) Store and provide input of date information in ways that are unambiguous as to century; and
- (e) Manage the leap year occurring in the year 2000, following the quad-centennial rule. The "quad-centennial rule" means (i) if the year is divisible by 4, it is a leap year, unless (ii) the year is also divisible by 100, then it is not a leap year, unless (iii) the year is also divisible by 400, then it is a leap year.

ABB also warrants that the manufacture of any Equipment, Product or other goods to be supplied hereunder will be Year 2000 Compliant and that such manufacturing as well as transportation and delivery of the Equipment will not be materially adversely impacted as a result of any failure to be Year 2000 Compliant. Any claims of Purchaser concerning Year 2000 compliance must be received by ABB not later than the last to occur of (i) January 15, 2001 and (ii) twelve (12) months following the availability of two (2) completed Units for commercial operations.

15.8. Remedies. Repair or replacement of nonconformities in the manner and for the period of time provided above shall be Purchaser's exclusive remedy for breach of such warranties and shall constitute fulfillment of all liabilities of ABB with respect to such breach, provided that the foregoing shall not relieve ABB of its indemnification and hold harmless covenants set forth elsewhere in this Contract.

15.9. Disclaimer and Warranties. ABB MAKES NO OTHER WARRANTIES DIFFERING FROM THOSE CONTAINED HEREIN, EITHER EXPRESS OR IMPLIED. ABB SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES, WHETHER OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.

16. PERIODIC MEETINGS AND REPORTS

16.1. ABB shall attend meetings and provide monthly progress reports as more particularly set forth in Appendix I. ABB will honor the reasonable requests of Purchaser for information about the status of the Equipment of the Work. ABB will fairly and promptly provide Purchaser with the level of detail and information that is reasonably requested.

17. PROPRIETARY INFORMATION

17.1. ABB Confidential Information. Any Equipment Documents submitted to Purchaser and other proprietary information furnished by ABB relating to the design, manufacture, installation, operation and maintenance of the Equipment (collectively ABB's "Confidential Information") shall remain the exclusive property of ABB. Purchaser shall not, without ABB's prior written consent, use, copy or disclose such Confidential Information to a third party except as may be reasonably necessary to use, operate, maintain, enhance or improve the Equipment or as reasonably necessary for the transfer of Equipment or the generating station to a new owner. Purchaser shall have the right to retain, copy, execute, display, modify, create derivative works of, use and disclose copies of the Confidential Information for the foregoing purposes and as otherwise provided in this Contract and such right has been fully paid for and is fully vested in Purchaser. Any disclosure of ABB's Confidential Information to a third party shall be done only pursuant to an obligation of confidentiality restricting its use to the specific project contemplated and undertaken by such third party which allows ABB to proceed directly against such third party for breach of obligations thereof and a copy of all such agreements shall be provided to ABB upon signing.

17.2. Exceptions. The confidentiality and use restrictions in Section 17.1 shall not apply to Confidential Information which (i) was in the possession of Purchaser at the time it was furnished, (ii) is independently developed by Purchaser or is or becomes known in the electric utility generation industry or other part of the public domain without breach of this provision, (iii) is received from a third party who is, to the knowledge of Purchaser, after inquiry, under no limitation or restriction regarding disclosure, or (iv) is information required to be disclosed pursuant to law, order, regulation, or in a legal regulatory or similar proceeding, but Purchaser shall inform ABB of any such prospective disclosure and shall reasonably cooperate with ABB, at ABB's expense, to limit such disclosure.

18. PROJECT FUNDING

18.1. Adequate Funds. Prior to the date of Contract signing, Purchaser shall provide evidence of funding availability on the books of Purchaser showing that funding is 100% available for the purchase of the Equipment.

19. INTELLECTUAL PROPERTY

19.1. Indemnity. In the event of a threatened claim, litigation or other judicial proceeding the basis of which is that the Equipment or any Work infringes on an apparatus patent or any other intellectual property right (other than those to the extent arising out of (i) equipment specifically required by Purchaser to be supplied hereunder or supplied according to Purchaser's detailed design other than the Equipment as specified in this Contract on the date hereof or as recommended, specified or contemplated by ABB; (ii) modifications, alterations, additions or

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changes made by Purchaser to the Equipment or (iii) the use of the Equipment or the Work in conjunction with any other process, equipment or material not otherwise recommended specified or contemplated by ABB, ABB shall indemnify, hold harmless, defend, pay all costs of defending and pay damages awarded by a court therein plus the costs to replace any Equipment or to reperform any work (including shipment, removal of infringing Equipment and installation of non-infringing Equipment and any other reasonable out-of-pocket direct costs or administrative expenses incurred by Purchaser for such replacement or reperformance; provided that Purchaser notifies ABB in writing of such claim promptly upon Purchaser receiving notice thereof and gives ABB control over the defense and/or settlement of such claim and reasonable assistance in said defense.

- 19.2. Actions. If the Equipment or Work is determined to be infringing or, in ABB's reasonable opinion, infringement may occur, ABB shall, at its option and expense, and subject to Section 19.1 either (i) procure for Purchaser the right to continue using said Equipment or the benefits of the Work, (ii) modify the Equipment or Work so there is no infringement, or (iii) replace (including shipment of new Equipment, removal of infringing Equipment and installation of the non-infringing Equipment required thereby) it with substantially equivalent non-infringing Work or Equipment. Any modified or replaced Equipment or Work shall have equivalent output, cost operating and performance characteristics and without affecting any performance guarantee criteria.

20. CANCELLATION/DEFAULT

- 20.1. Cancellation. Purchaser may terminate this Contract for its convenience upon fifteen (15) calendar days prior written notice and upon payment to ABB of the cancellation charges set forth in Appendix D, subject to refunds as provided below or pursuant to Section 13.3(d). ABB shall, upon demand and by wire transfer in immediately available funds, repay to Purchaser all amounts paid to ABB in excess of the cancellation charges paid in accordance with Appendix D. Furthermore, Purchaser shall be given a credit equal to the cancellation charges paid, which credit shall be refunded by ABB to Purchaser within forty-five (45) calendar days after the resale by ABB of the Equipment, less the difference, if any, between the Contract Price and the sales price ABB obtains upon such resale, if such sales price is less than the Contract Price. ABB shall also be entitled to deduct from such credit its reasonable out-of-pocket direct costs or expenses such as selling and administrative expenses incurred in connection with such resale (the "Resale Expenses"), less the amount (not to exceed the amount of the Resale Expenses) by which such sales price is greater than the Contract Price. If only a portion of the Equipment is resold, ABB shall refund an equitable proportion of the cancellation charges due.

- 20.2. Default by ABB. Purchaser may terminate the whole or any part of ABB's performance under this Contract upon the occurrence of any of the following events:

- (a) if ABB delivers materially nonconforming Equipment or Work, fails to make progress as to endanger performance of this Contract, or otherwise fails to perform any other material provision of this Contract in accordance with its terms;
- (b) if ABB is adjudicated a bankrupt under the U.S. Bankruptcy Code, or is adjudicated insolvent under the laws of any state; a voluntary petition in bankruptcy by ABB is filed or an involuntary petition in bankruptcy against ABB is filed and not dismissed within sixty (60) calendar days of the filing thereof; there is an appointment of a receiver, custodian, or liquidator for ABB; there is a making of a general assignment by ABB for the benefit of its creditors; or a resolution is passed or an order is made for the winding up, liquidation, or reorganization of ABB.

If Purchaser intends to terminate the whole or any part of ABB's performance under this Contract for default under (a) or (b) above, Purchaser will provide ABB with written notice of the nature of ABB's default and Purchaser's intention to terminate for default. In the event ABB does not cure such default or, consistent with Purchaser's then current circumstances with respect to the operation of the applicable Equipment, commence and diligently pursue a cure of such default, or provide reasonable evidence that such default does not in fact exist, or will be corrected within thirty (30) calendar days (or such longer period as may be expressly referred to in Section 20.2(b) above), Purchaser will provide ABB with a written Notice of Default. In the event Purchaser terminates this Contract in whole or in part as provided in this Section, Purchaser may procure, upon such terms and in such manner as Purchaser deems reasonably appropriate, goods and services, including the Equipment and the Work, similar to those so terminated and ABB shall be liable to Purchaser for any excess costs for such similar goods and services; provided that ABB shall continue the performance of this Contract to the extent not terminated hereunder.

- 20.3. Default by Purchaser. If Purchaser fails to make any payment to ABB when due under the provisions of this Contract, and such failure is not remedied within thirty (30) calendar days of Purchaser's receipt of notice of such default, then ABB, may terminate this Contract for Purchaser's default and recover all actual damages resulting from Purchaser's default, provided that such recovery for actual damages shall not exceed the Contract Price and shall be subject to ABB's duty to mitigate any damages incurred by ABB because of such termination.

21. ASSIGNMENT

Assignment and Financial Responsibility. Any assignment by either party of this Contract or any of the rights and obligations hereunder without the prior written consent of both ABB and Purchaser shall be void. Notwithstanding the foregoing, Purchaser may assign this Contract to any third party, successors in interest or any affiliate and may collaterally assign this Contract to its secured lenders, provided, however, that the assignee (other

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than a secured lender) expressly agrees to assume the assignor's obligations under this Contract and that Purchaser shall guarantee the payment obligations under the Contract or make such assignment to a financially responsible entity, the financial standing of which is reasonably satisfactory to ABB. Furthermore, Purchaser may not assign this Contract to a competitor of ABB which manufactures and sells gas turbine equipment similar to the Equipment.

22. **PARTIAL INVALIDITY**

If any provision of this Contract or the application thereof to any person or circumstance, shall to any extent be held invalid or unenforceable by a court of competent jurisdiction, the remainder of this Contract, and the application of such provision to persons or circumstances other than those as to which it is specifically held invalid or unenforceable, shall not be affected thereby, and each and every remaining provision of this Contract shall be valid and binding to the fullest extent permitted by law; provided, however, the parties agree to negotiate in good faith and shall reform this Contract to as closely as possible resemble the original intent and allocation of risks and benefits.

23. **CHOICE OF LAW; DISPUTES**

23.1. Law. The rights and remedies of the parties hereunder shall be governed by the laws of the Commonwealth of Virginia excluding its choice of law provisions.

23.2. Resolution by the Parties.

(a) Key Personnel to Resolve. An authorized representative of a party may submit a claim, dispute or other controversy arising out of, or relating to, this Contract which an authorized representative of a party does not believe can be resolved by the parties' Authorized Representatives (hereinafter collectively referred to as a "Dispute") to a Senior Officer from each Party for resolution by mutual agreement between the Senior Officers. Any agreed determination by the Senior Officers shall be final and binding upon the parties. However, if the Senior Officers do not arrive at a mutual decision as to the Dispute within ten (10) calendar days (or such longer time as the parties agree) after notice to both individuals of the Dispute, such Dispute shall, if the value of the Dispute to the aggrieved party is less than \$1,000,000 (the "Arbitration Range") then be settled by arbitration in accordance with the terms and provisions set forth in Section 23.3 hereof. If the Dispute is not in the Arbitration Range, either party may pursue any other available remedy at law or in equity. For purposes of this Contract, the term "Senior Officer" means the chief executive officer, president or any senior vice president of a party.

23.3. Arbitration Proceedings.

(a) Demand for Arbitration. All arbitration proceedings shall take place in Cincinnati, Ohio and shall be conducted in accordance with

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the Construction Industry Rules then in effect of the American Arbitration Association. Notice of the demand for arbitration shall be filed with the other party and shall be made within a reasonable time after such party is permitted to arbitrate the Dispute as provided herein ("Notice"). The Notice shall specify the name and address of an arbitrator designated by such party, the nature of the dispute and the amount involved. In no event shall demand for arbitration be made or permitted after the date when the institution of legal or equitable proceedings based on such Dispute would be barred by the applicable Virginia statute of limitations.

- (b) Selection of Arbitrator. Within twenty-one (21) calendar days after receipt of the Notice, the party that received such Notice shall respond (the "Response") by written notice specifying the name and address of the arbitrator designated by it. If a party fails to deliver its response within such twenty-one (21) calendar day period, the arbitrator specified in the Notice shall be the sole arbitrator of the dispute. Within fourteen (14) calendar days after receipt of the Response, the two arbitrators shall appoint a third arbitrator. All arbitrators shall be in all cases neutral persons with no financial or personal interest in the result of the arbitration or any present relationship with the parties or their counsel. The arbitrators shall endeavor to conduct the arbitration proceedings expeditiously in order to be able to render a decision within thirty (30) calendar days of selection of the third arbitrator. The decision of the third arbitrator shall control if no majority decision can be reached.

- (c) Consolidation. No arbitration arising under this Contract shall include, by consolidation, joinder or any other manner, any person not a party to this Contract, unless (i) such person is substantially involved in a common question of fact or law, (ii) the presence of such person is required if complete relief is to be accorded in the arbitration, and (iii) such person has consented to such inclusion.

- (d) Binding Nature. The agreement herein among the parties to arbitrate under certain circumstances shall be specifically enforceable in any court of competent jurisdiction. In rendering their decision and award, the arbitrators shall not add to, subtract from, or otherwise modify the provisions of this Agreement and shall apply the substantive law of the Commonwealth of Virginia. Any decision rendered by the arbitrator(s) pursuant to any arbitration shall be in writing, shall explain the basis on which the decision or award is based, shall be delivered to both parties and shall be final and binding upon the parties hereto, and judgment may be entered upon it in accordance with Applicable Law in any court of competent jurisdiction.

- (e) Costs and Expenses. The arbitrators, at their discretion, shall have the authority to award the prevailing party recovery of all or any

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portion of the costs of the arbitration, including reasonable attorneys fees and charges.

- (f) Discovery. The parties have the right to conduct reasonable discovery. Any party may apply to the arbitrator(s) for an order limiting the scope of discovery or the time to complete such discovery. The right to conduct discovery shall be granted by the arbitrators in their sole discretion with a view to avoiding surprise and providing reasonable access to necessary information or to information likely to be presented during the course of the arbitration.
- (g) Cross-examination. Direct testimony may be admitted by sworn affidavit, provided that the opposing party is given the right to cross-examine any witness whose testimony is so admitted.
- (h) Arbitration Notices. Communications under this Article 23 may be given in the manner provided in Section 26.5.

23.4. Continuation of Work. Pending final resolution of any Dispute, ABB shall proceed diligently with the performance of its duties and obligations under this Contract, and Purchaser shall continue to make undisputed payments in accordance with the terms of this Contract.

24. INSTALLATION/FIELD SERVICES

Unless otherwise agreed, the Equipment shall be installed by Purchaser, at its expense. ABB shall provide technical field advisors for installation (TFA's) and technical field advisors for commissioning (TFA's) as outlined in Appendix L. Appendix L contains the personnel commitments, including durations included in Contract Price. Any services in excess of the commitments set forth in Appendix L, to the extent not caused by ABB or any of its Affiliated Companies, and if additional TFA services are requested by Purchaser, these additional services shall be provided in accordance with the current service rate schedule and the General Conditions for Service. Base hours and calculation methods of TFA's shall be set forth in Appendix L.

25. INDEMNIFICATION AND INSURANCE

25.1. Indemnity. ABB shall indemnify, hold harmless and defend Purchaser, Operator their officers, directors, agents and employees from and against any claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs or expenses (including reasonable legal fees, costs and charges, incurred as the result of a third party claim) whatsoever, but only to the extent arising out of and caused or occasioned by any negligent or willful act or omission of ABB, or any of its officers, directors, agents or employees, contractors or Subcontractors in connection with (i) the supply of Equipment or the performance of the Work under or in connection with this Contract, and resulting in bodily injury, including death or destruction of third-party tangible property, and (ii) any breach of ABB's

obligations to comply with Applicable Law hereunder, except that ABB's indemnity obligation is subject to Section 11.1. The obligation of ABB to indemnify Purchaser is conditioned on Purchaser giving ABB prompt notice of any loss, damage or claim, and providing ABB a full opportunity to participate in the defense and, provided ABB affirmatively acknowledges its indemnity obligation in connection with such loss, damage, or claim, to approve any settlement thereof. During the finalization of the payment responsibilities of the Parties, the concepts of comparative negligence shall be used for the assessment of payment responsibility.

25.2. Insurance.

(a) During the performance of the work by ABB, ABB shall maintain in effect the following insurance:

Workers Compensation	Statutory -----
Employer's Liability	\$1,000,000 bodily injury by accident, each accident \$1,000,000 bodily injury by disease, policy limit \$1,000,000 bodily injury by disease, each employee
Commercial General Liability (Occurrence Form)	\$1,000,000 combined single limit per occurrence and in the aggregate including:
	• Bodily Injury • Personal Injury & Death • Property Damage • Contractual Liability • Product/Completed Operation Liability • Contractor's protective Liability • XCU Hazards Liability • Broad Form Property Damage
Comprehensive Automobile	\$1,000,000 combined single limit per occurrence and in the aggregate
Umbrella Form	\$10,000,000 combined single limit per occurrence and in the aggregate

(a) ABB shall furnish to Purchaser copies of certificates of insurance executed by ABB's insurance carrier or it's authorized representative which names Purchaser, Operator and Contractor as additional insureds subject to the indemnity provisions of Section 25.1 hereof.

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- (b) During the performance of the Work at the Site, Purchaser or its affiliate shall maintain the following insurance:

All Risk Completed Value Builders Risk coverage, including a DE5 or DE3 endorsement (at Purchaser's choice) with the following deductibles

\$ 100,000 during construction

\$ 250,000 during hot testing

\$ 500,000 during operation period prior to acceptance by Purchaser or its affiliate.

- (c) ABB and its Subcontractors shall be named as additional insureds on the All Risk Completed Value Builders Risk Policy to be maintained by Purchaser or its affiliate in accordance with Section 25.2(c). ABB and its Subcontractors shall be provided a waiver of subrogation on such policy.

- (d) As a condition to subcontracting any of its obligations hereunder, ABB shall require its Subcontractors to maintain the same insurance as ABB (except for umbrella insurance), and ABB shall provide certificates of such insurance to Purchaser before any Subcontractor performs any such obligations on the Site or upon Purchaser's request.

26. LIMITATION OF LIABILITY

26.1. Overall Limit. Except for its infringement and indemnity obligations under Article 19, its indemnity obligations under Article 10, its indemnity obligations under Article 25 for third party claims [to the extent such indemnities are subject to insurance coverage or paid from the proceeds of insurance obtained by ABB (unless ABB has elected to self-insure) and without regard to deductibles or self-retentions], and violations of Applicable Law, ABB's aggregate liability for all claims of any kind, whether based on contract, warranty, tort (including negligence) strict liability or otherwise, for all losses or damages arising out of, connected with or resulting from this Contract, its performance or breach (including warranty and any liquidated damages) shall not exceed the Contract Price. ABB's sole liability in respect to performance of the Equipment shall be only as expressly stated in this Contract, including, the performance guarantee section of Appendix E.

26.2. No Consequential Damages. EXCEPT FOR LIQUIDATED DAMAGES SPECIFICALLY PROVIDED IN THIS CONTRACT, IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, SHALL EITHER PARTY BE LIABLE TO THE OTHER FOR INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY NATURE, INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS OR REVENUE; LOSS OF DATA; LOSS OF USE OF EQUIPMENT; COST OF

CAPITAL; DOWNTIME COSTS; COST OF ELECTRIC POWER OR CLAIMS OF THIRD PARTIES OR CUSTOMERS FOR SERVICE INTERRUPTIONS. THIS SECTION 26.2 SHALL NOT BE DEEMED TO DIMINISH OR NEGATE THE REMEDIES AVAILABLE TO EITHER PARTY IN THE EXPRESS PROVISIONS OF THIS CONTRACT.

26.3. Except as expressly provided herein, this Limitation of Liability Article shall prevail over any conflicting or inconsistent provisions contained in any documents comprising the Contract; except to the extent such conflicting or inconsistent provisions further restrict such party's liability.

27. **NON-WAIVER**

The failure of either party to insist upon or enforce, in any instance, strict performance by the other party of any provision or to exercise any right herein conferred shall not be construed as a waiver or relinquishment to any extent of its right to assert or rely upon any such provision or rights on any future occasion.

28. **ACCEPTANCE OF CONTRACT**

The parties hereto agree that they have not been induced to enter into this Contract by any representations, statements or warranties by the other party other than those expressed herein or in any other document comprising this Contract. Neither party makes any guarantee nor assumes any liabilities except as specifically stated herein.

29. **LIQUIDATED DAMAGES**

The parties acknowledge that the failure of ABB to properly perform certain of its obligations shall subject Purchaser to damages and losses that are not capable of being accurately measured or determined under presently known or anticipated facts and circumstances. Accordingly, the following provisions reflect the parties' agreement to estimate and liquidate such damages, not as a penalty, but rather as an exclusive remedy of Purchaser for ABB's failure to perform the identified responsibilities set forth below:

29.1. Failure to Timely Deliver Documents

- (a) (a) If ABB fails to deliver completed documents specified as "Critical" in Appendix J, as required by this Contract on or before the date specified for submittal on Appendix J, ABB shall be liable to Purchaser in the amount of \$500 for each calendar day that each such document delivery is late. The dates specified in Appendix J are subject to adjustment in accordance with the terms of this Contract.
- (b) (b) Purchaser agrees that the liquidated damages to be paid to Purchaser pursuant to Section 29.1(a) constitute the exclusive liability of ABB for its failure to deliver such documents in a timely manner and the payment of such liquidated damages is the exclusive remedy of Purchaser

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therefor. In no event shall liquidated damages pursuant to Section 29.1(a) exceed \$50,000.

29.2. Failure to Timely Deliver Equipment

- (a) (a) If ABB fails to complete delivery of any portion of the Equipment as required by the provisions of this Contract within the time requirements specified therefor in Appendix F, ABB shall be liable to Purchaser in the amount of \$30,000 per calendar day for each calendar day that any one (1) or more portions of the Equipment specified in Appendix F are late. The dates specified in Appendix F are subject to adjustment in accordance with the terms of this Contract.
- (b) (b) Purchaser agrees that the liquidated damages to be paid to Purchaser pursuant to Section 29.2(a) constitute the exclusive liability of ABB and the payment of such liquidated damages is the exclusive remedy of Purchaser for ABB's failure to deliver portions of the Equipment in a timely manner as provided in Appendix F. Liquidated damages paid pursuant to Section 29.2(a) shall not exceed \$30,000 a calendar day or a maximum of five percent (5%) of the Contract Price.

29.3. Failure to Achieve Substantial Completion By Guaranteed Substantial Completion Date

- (a) (a) If ABB does not achieve Substantial Completion by the Guaranteed Substantial Completion Date, ABB shall be liable to Purchaser in the amount of \$25,000 for each Unit for each calendar day for the first fifteen (15) calendar days, and thereafter, \$50,000 for each Unit for each calendar day until Substantial Completion is achieved, provided, however, if the requirements of Substantial Completion have been met in every respect, except that only one Unit is complete and capable of being placed in service by Operator, liquidated damages shall only apply to the uncompleted Unit until Substantial Completion is achieved.
- (b) (b) Purchaser agrees that the liquidated damages to be paid to Purchaser pursuant to Section 29.3 shall constitute the exclusive liability of ABB and the payment of such liquidated damages is the exclusive remedy of Purchaser for ABB's failure to timely achieve Substantial Completion. In no event shall liquidated damages paid pursuant to Section 29.3 exceed twenty percent (20%) of the Contract Price.

29.4. Performance Liquidated Damages.

- (a) (a) The parties agree that it would be extremely difficult and impracticable under the presently known and anticipated facts and circumstances to ascertain the actual damages Purchaser would incur

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should ABB fail to successfully achieve the Guaranteed Net Power Output and the Guaranteed Net Heat Rate, as demonstrated in Performance Tests conducted therefor, on or before the Guaranteed Final Completion Date. Accordingly, the parties hereby agree that if ABB fails to successfully achieve the Guaranteed Net Power Output and the Guaranteed Net Heat Rate by the Guaranteed Final Completion Date, then Purchaser's exclusive remedy for such failure shall be to recover from ABB as liquidated damages, and not as a penalty, those amounts identified below; it being acknowledged and agreed by the Parties hereto that the liquidated damages identified in this Section 29.4 relate solely to ABB's failure achieve the Guaranteed Net Power Output and the Guaranteed Net Heat Rate by the Guaranteed Final Completion Date.

(i) Guaranteed Net Gas Power Output: ABB shall pay for its failure to achieve the Guaranteed Net Gas Power Output, as liquidated damages and not as a penalty, amounts calculated as follows:

$$\{GNPO \text{ (at Guaranteed Operation Conditions)} - (\text{Net Power Output (kW)} \text{ corrected to Guaranteed Operating Conditions}) \times \$380$$

In the event the result of the calculation is less than zero, it shall be adjusted to zero.

(ii) Guaranteed Net Oil Power Output: ABB shall pay for its failure to achieve the Guaranteed Net Oil Power Output, as liquidated damages and not as a penalty, amounts calculated as follows:

$$GNPO \text{ (at Guaranteed Operation Conditions)} - (\text{Net Power Output (kW)} \text{ corrected to Guaranteed Operating Conditions}) \times \$380 \text{ } \underline{\$1.00 \text{ (one dollar)}}$$

In the event the result of the calculation is less than zero, it shall be adjusted to zero.

(iii) Guaranteed Net Gas Heat Rate: ABB shall pay for a failure to achieve the Guaranteed Net Gas Heat Rate as liquidated damages and not as a penalty, an amount calculated as follows:

$$\frac{\text{actual Net Heat Rate (Corrected to Guaranteed Operation Conditions)} - GNHR \times \$10,000$$

In the event the result of the calculation is less than zero, it shall be adjusted to zero.

(iv) Guaranteed Net Oil Heat Rate: ABB shall pay for a failure to achieve the Guaranteed Net Oil Heat Rate as liquidated damages and not as a penalty, an amount calculated as follows:

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actual Net Heat Rate (Corrected to Guaranteed Operation
Conditions) - GNHR x \$1.00 (one dollar)

In the event the result of the calculation is less than zero, it shall be adjusted to zero.

It is further provided that payment of liquidated damages for (i) failure to achieve the Guaranteed Net Heat Rate shall in no event exceed twenty (20%) of the Contract Price and (ii) failure to achieve the Guaranteed Net Power Output shall in no event exceed twenty (20%) of the Contract Price.

- (b) (b) Failure to Achieve the Starting Reliability Guarantee. If, on or after the second anniversary of the Substantial Completion Date, ABB's efforts to make repairs, corrections or replacements to any Unit in order to achieve the Starting Reliability Guarantee for such Unit have not been successful, ABB, at its option, may stop taking corrective action upon notice to Purchaser accompanied by payment of liquidated damages in an amount calculated as follows: \$50,000 for each full percent by which the Starting Reliability Guarantee as determined in accordance with Section 3.5.1 of Appendix E is less than ninety-five percent (95%). Liquidated damages shall be pro-rated for shortfalls below one full percent.
- (c) (c) Failure to Achieve Running Reliability Guarantee. If, on or after the second anniversary of the Substantial Completion Date, ABB's efforts to make repairs, corrections or replacements to any Unit in order to achieve the Running Reliability Guarantee for such Unit have not been successful, ABB, at its option, may stop taking corrective action upon notice to Purchaser accompanied by payment of liquidated damages in an amount calculated as follows: \$50,000 for each full percent by which the Running Reliability Percentage as determined in accordance with Section 3.5.2 of Appendix E is less than ninety-five percent (95%). Liquidated damages shall be pro-rated for shortfalls below one full percent.

29.5. Guaranteed Exhaust Emissions and Guaranteed Sound Emissions: ABB shall achieve the Guaranteed Gas Exhaust Emissions in Performance Tests (conducted by Purchaser) as required by Appendix E, as a condition of achieving Substantial Completion. ABB shall achieve the Guaranteed Exhaust Emissions and Guaranteed Sound Emissions in Performance Tests (conducted by Purchaser) as a condition of achieving Final Completion. In the event that the Equipment fails to achieve the Guaranteed Exhaust Emissions or the Guaranteed Sound Emissions, ABB shall be granted access to the Equipment at time or times mutually acceptable to Purchaser to rectify such failure.

29.6. No Testing Tolerances. In determining performance levels during the Performance Tests, no testing tolerances shall be permitted.

29.7. Opportunity to Correct. ABB shall be given opportunities at mutually agreeable time or times which do not interfere with the operational requirements of the Operator (consistent with Section 37.13) after the Performance Tests, to modify the Units which have been demonstrated to be deficient in heat rate, output, emissions, sound or otherwise in order to meet Performance Guarantees therefor. If the Equipment achieves the Threshold Net Heat Rate and the Threshold Net Power Output but fails to achieve the Guaranteed Net Heat Rate and the Guaranteed Net Power Output during a Performance Test, ABB shall be given reasonable access (consistent with Section 37.13) to the Equipment to repair or replace components (or otherwise make corrections) causing performance deficiency. If such repair, replacement or correction period exceeds one hundred eighty (180) calendar days following the Guaranteed Substantial Completion Date, ABB shall be responsible for the differential cost of fuel until the design point is passed in accordance with guarantee requirements or ABB pays liquidated damages required to be paid in accordance with Section 29.4 (a)(iii).

29.8. Payment.

Liquidated damages incurred by ABB pursuant to Sections 29.1, 29.2, or 29.3 shall be paid to Purchaser on or before the thirtieth (30th) calendar day of the calendar month following the calendar month in which such liquidated damages were incurred. Except as otherwise provided, other liquidated damages for which ABB is liable hereunder shall be paid to Purchaser within thirty (30) calendar days of notice to ABB. Failure of ABB to make payment of liquidated damages in accordance herewith shall entitle (but not obligate) Purchaser to withhold such damages from other amounts due to ABB hereunder or deduct such damages from the Retainage.

29.9. Bonus. For the first Unit, Purchaser shall pay to ABB a bonus in the amount of \$25,000 for each calendar day on or after June 15, 1999 (up to a maximum of forty-six (46) calendar days), by which ABB turns over to Purchaser a fully completed Unit meeting the requirements of Substantial Completion (as it would be adjusted if it applied to only one Unit) that is capable of being placed in service by Operator prior to August 1, 1999. For the second Unit, Purchaser shall also pay to ABB a bonus in the amount of \$25,000 for each calendar day (up to a maximum of fifteen (15) calendar days) by which Substantial Completion precedes August 1, 1999. Notwithstanding the foregoing, in the event Substantial Completion is not achieved prior to August 1, 1999, no bonus under this Section 29.9 shall be paid to ABB. For purposes of this Section 29.9 only, the August 1, 1999, date set forth in this Section 29.9 is not subject to adjustment for any reason whatsoever including, Purchaser fault, Contractor fault or Force Majeure, and ABB agrees not to dispute, whether under Section 23.2 or otherwise, whether a bonus is payable hereunder on account of thereof.

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30. **COMPLETION DATES**

30.1. ABB shall achieve Substantial Completion by the Guaranteed Substantial Completion Date.

30.2. ABB shall achieve Final Completion by the Guaranteed Final Completion Date.

31. **MAXIMUM AGGREGATE LIQUIDATED DAMAGES**

The maximum aggregate liquidated damages payable under this Contract shall not exceed thirty-five (35%) of the Contract Price.

32. **NOTICES.**

All notices pertaining to this Contract shall be in writing, signed by a duly authorized representative of the party giving such notice and shall be deemed given when received by personal delivery, certified mail, recognized express courier or facsimile (followed by certified mail or recognized express courier) to the other party at the address designated below:

If to Purchaser: Noel W. Lively
Site Manager
Kentucky Utilities Company
815 Dix Dam Road
Burgin, Kentucky 40310
Tel: 606-748-4620
Fax: 606-748-4621 *z mmt*

If to ABB: Albrecht H. Mayer
Project Manager
ABB Power Generation Inc.
5309 Commonwealth Centre Parkway
Midlothian, Virginia 23112
Tel: 804-763-2127
Fax: 808-763-2062

33. **PROGRESS**

If at any time ABB's actual progress is inadequate to meet the requirements of this Contract, Purchaser may so notify ABB, which shall thereupon take such steps as may be necessary to improve its progress. If within a reasonable period of time as determined by Purchaser, ABB does not improve performance to meet the schedules set forth in this Contract, Purchaser shall be entitled to require ABB to increase its labor force, the number of shifts, overtime operations and additional calendar days of work per week, all without additional cost to Purchaser. Neither such notice by Purchaser nor Purchaser's failure to issue such notice shall relieve ABB of its obligations to achieve the quality of work and rate of progress required by this Contract.

34. **AUTHORIZED REPRESENTATIVES**

ABB's authorized representative acceptable to Purchaser to represent and act for ABB is Albrecht H. Mayer. ABB shall also appoint an authorized Site representative acceptable to Purchaser to represent and act for ABB at the Site. Upon such appointment, ABB shall promptly give notice to Purchaser. All written communications given to the authorized representative by Purchaser in accordance with this Agreement shall be binding on ABB. Purchaser's authorized representative acceptable to ABB to represent and act for Purchaser and to receive communications from ABB is Noel W. Lively. Notification of changes of authorized representatives for either ABB or Purchaser shall be provided in advance, in writing, to the other party. Each party shall specify any and all limitations of its representative's authority in a notice delivered to the other party.

35. **REPRESENTATIONS AND WARRANTIES**

35.1. ABB. ABB hereby represents and warrants the following to Purchaser, which representations and warranties shall survive the execution and delivery of this Contract, any termination of this Contract and the final completion of the Work:

- (i) that ABB is able to furnish the Equipment, complete the Work and perform its obligations hereunder, and has sufficient experience and competence to do so;
- (ii) that ABB is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware, and is duly qualified to do business in each jurisdiction in which the failure to do so would have a material adverse affect on ABB; and
- (iii) that this Contract has been duly authorized, executed and delivered by ABB and constitutes the legal, valid and binding agreement of ABB.

35.2. Purchaser. Purchaser hereby represents and warrants the following to ABB which representations and warranties shall survive the execution and delivery of this Contract and any termination of this Contract and the final completion of the Work:

- (i) that Purchaser is able to perform its obligations hereunder and has sufficient experience and competence to do so;
- (ii) that Purchaser is a corporation duly organized, validly existing and in good standing under the laws of the State of Kentucky, and is duly qualified to do business in each jurisdiction in which the failure to do so would have a material adverse affect on ABB; and
- (iii) that this Contract has been duly authorized, executed and delivered by Purchaser and constitutes the legal, valid and binding agreement of Purchaser.

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36. INTENTIONALLY DELETED

37. MISCELLANEOUS

- 37.1. Headings. Titles and headings are inserted for convenience only and shall not be used for the purposes of construing or interpreting this Contract.
- 37.2. Provisions Required by Law. Any term or condition required to be contained in this Contract as a matter of law which is not so contained herein shall be deemed to be incorporated in this Contract as though originally set forth herein.
- 37.3. Joint Effort. Preparation of this Contract has been a joint effort of the parties; the resulting document shall not be construed more severely against one of the parties than against the other.
- 37.4. Counterparts. This Contract may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. The provision by a party to the other party of an executed signature page by facsimile shall be deemed valid and binding on such party.
- 37.5. Tax Information. ABB will provide tax information required with respect to the Equipment as required reasonably by Purchaser.
- 37.6. Sound Emissions Assistance. If the results of the initial sound emissions test performed during the performance testing for Substantial Completion does not demonstrate compliance with the Guaranteed Sound Emissions, then ABB and Purchaser will take appropriate actions to attenuate such emissions and to mitigate any adverse consequences that result from higher than anticipated emissions.
- 37.7. Air Certifications. To the extent required by any applicable governmental authority, on or after achievement of Substantial Completion, Purchaser shall be responsible for the cost of emissions monitoring necessary to obtain certification of air emissions. If, subsequent to the installation of oil firing capability, any additional emissions certifications shall be necessary, ABB will pay the cost of obtaining such outside contractors as are necessary to test, certify or re-certify air emissions from the Equipment.
- 37.8. Remedies. Except where the remedies are specified as being exclusive therein, the rights and remedies of the parties are not exclusive and either party may pursue any rights and remedies available to it under this Contract or by law.
- 37.9. Inclusion; Order of Precedence. The Purchase Order, the appendices thereto, these General Conditions of Sale and the exhibits hereto and all other documents incorporated herein shall be considered complementary and what is required by one shall be binding as if required by all. The failure to specifically list a requirement in one document, once this requirement is specifically listed in

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another, shall not imply the inapplicability of such requirement, and ABB shall provide as part of this Contract all items and services required to conform to Appendix B and the standards herein contained. In the event of a conflict between these General Conditions of Sale and the appendices or exhibits to the Purchase Order these General Conditions shall govern. The latest date of an amendment or Change Order shall take precedence over that part of this Contract which it supersedes.

- 37.10. Notice of Labor Disputes. Whenever ABB has knowledge that any actual or anticipated labor dispute is delaying or threatens to delay the timely performance of its obligations under this Contract, ABB shall promptly give Purchaser notice thereof, including all relevant information with respect thereto.
- 37.11. Survival. The indemnification obligations of Purchaser and of ABB expressly set forth in this Contract shall survive the expiration or earlier termination of this Contract.
- 37.12. Late Payments. If either party fails to make any payment required under this Contract when due and owing, interest shall accrue on such overdue amounts at the Default Rate from the date due until paid.
- 37.13. In-Service. ABB acknowledges that Purchaser or Operator intends to place the Units in commercial operation on or prior to August 1, 1999. Accordingly, as soon as a Unit is capable of being operated in commercial operation or ABB achieves Substantial Completion, ABB agrees that Purchaser or Operator may place the Unit(s) in service and ABB shall complete its obligations hereunder required to achieve Final Completion in a manner consistent with the operational requirements of the Units, without entitlement to a Change Order. Accordingly, ABB shall schedule and coordinate with Purchaser the performance of its remaining obligations to avoid any material adverse impact on Purchaser's or Operator's ability to operate the Units. Notwithstanding anything to the contrary herein, in no event shall Purchaser or Operator be obligated to take either or both Units out of service, reduce their output or availability below that required to meet Operator's needs or otherwise adversely affect Operator's ability to generate electricity. Purchaser acknowledges that the Net Oil Power Output of the Units may be derated when operating on fuel oil until combustor pulsation levels are acceptable (which ABB will perform as part of its obligations under this Contract prior to June 1, 2000).
- 37.14. Unit Notice. Purchaser and ABB will discuss and agree on the appropriate numbering for each Unit when designated on drawings.

ENGINEERING, PROCUREMENT & CONSTRUCTION

AGREEMENT

BY AND BETWEEN

OVERLAND CONTRACTING, INC.

AND

LG&E CAPITAL CORP.

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Exhibit K	Record Drawings and Calculations
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Exhibit Q	Submittals and Review
Exhibit R	Meetings and Progress Reports
Exhibit S	E. W. Brown Generating Station Site Regulations
Exhibit T	Full and Partial Releases
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Exhibit W	Insurance
Exhibit X	Terminal Points

ENGINEERING, PROCUREMENT & CONSTRUCTION AGREEMENT

THIS ENGINEERING, PROCUREMENT & CONSTRUCTION AGREEMENT (this "Agreement") is made as of the ___ day of December __, 1998, by and between LG&E Capital Corp., a Kentucky corporation, and Overland Contracting, Inc., a Delaware corporation ("Contractor").

RECITALS

- A. Owner (as hereinafter defined) currently is engaged in a project to add two (2) combustion turbines to the existing E. W. Brown Generating Station located in Burgin, Kentucky. The Facility (as hereinafter defined) includes those items set forth in Exhibit A hereto as well as all other systems, interconnections, Equipment (as hereinafter defined) and materials required for compliance with the terms of this Agreement.
- B. The Parties (as hereinafter defined) wish to provide, among other things, for the design, engineering, procurement and construction, including materials and equipment (other than the ABB Scope, as hereinafter defined), and certain commissioning and testing services by Contractor of the Facility as set forth in this Agreement.
- C. Owner intends to place this Project (as hereinafter defined) in service on or prior to August 1, 1999.
- D. Contractor is satisfied as to its ability to engineer, design, procure and construct the Facility and provide commissioning and testing services, in accordance with requirements and provisions of this Agreement.

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the Parties hereto, intending to be legally bound, do hereby agree as follows:

ARTICLE 1

DEFINITIONS

The following terms have the respective meanings specified in this Article 1 when capitalized and used in this Agreement. Terms defined elsewhere in this Agreement shall have such meanings as are therein stated.

"ABB" means ABB Power Generation Inc., together with its subcontractors, the supplier of the ABB Equipment and ABB Work.

"ABB Equipment" means any and all equipment, components, materials, machinery, apparatus, items, processes and parts or portions thereof, together with related engineering, technical and other services, to be designed, manufactured or furnished by ABB in accordance with the ABB Purchase Order, including two (2) Units.

"ABB Purchase Order" means that certain purchase order dated as of November 2, 1998, pursuant to which Owner has purchased, among other things, two (2) Units.

“ABB Scope” means the design, fabrication and production of the ABB Equipment and the performance of the ABB Work, all in accordance with the ABB Purchase Order.

“ABB Work” means all services, including labor, training, advising, rework, appropriate to designing, manufacturing, delivering, assisting in installing, commissioning and testing of the ABB Equipment and the performance of the other obligations of ABB as required under the ABB Purchase Order.

“Agreement” means the body of this Agreement (the “Body of this Agreement”) and all Exhibits attached hereto, as they may be amended, modified or supplemented from time to time.

“Applicable Law” means any applicable statute, law, rule, regulation, code, ordinance, permit, approval, judgment, decree, writ, order, or the like, issued, enacted or promulgated by any Governmental Authority and official interpretations thereof by Governmental Authorities.

“Change in Law” means the enactment, adoption, promulgation, amendment, modification or change in interpretation by a Governmental Authority after the date of this Agreement of any Applicable Law; provided, however, that a change in Applicable Law with respect to (i) taxes or levies assessed on the basis of Contractor’s income, profits, revenues or gross receipts, or (ii) taxes, levies or withholdings which vary the compensation, benefits or amounts to be paid to, on behalf of or on account of Contractor’s employees shall not constitute a Change in Law hereunder.

“Change Order” has the meaning specified in Section 10.1(c).

“Changes” has the meaning specified in Section 10.1(a).

“Claim(s)” has the meaning specified in Section 20.1.

“Commencement Date” has the meaning set forth in Section 6.1.

“Computer Program(s)” means a sequence of instructions, data, or equations in any form, and explanations thereof, intended to cause a computer, a control data processor or the like to perform any kind of operation, which is provided by Contractor or its Subcontractors under this Agreement.

“Consumables” means items such as, air, demineralized water, oil and fuel filters and comparable items which, by normal industry practices, are considered consumables and are replaced on a regular basis plus the initial fill or charge of oil, lubricants, chemicals and similar substances, required for the proper operation of all Equipment, provided, however, such items do not include chemicals or other substances required for cleaning, preparing or completing the Work prior to initiating start-up activities with connection with such Work.

“Contract Price” has the meaning specified in Section 8.1.

“Contractor Default” has the meaning set forth in Section 24.2(a).

“Contractor’s Representative” means the individual designated by Contractor pursuant to Section 4.6 hereof.

“Day” means a calendar day and shall include Saturdays, Sundays and legal holidays, except that, in the event that an obligation to be performed under this Agreement falls due on a Saturday, Sunday or legal holiday at the location where the Work or other obligation is to be performed or delivered, the Work or obligation shall be deemed due on the next business day thereafter.

“Defect” has the meaning specified in Section 13.1.

“Design” means all design and engineering, including all detailed design, of the Facility by Contractor as it evolves during the performance of the Work.

“Design Documents” has the meaning set forth in Section 4.7.

“Dispute” has the meaning set forth in Section 23.1(a).

“Environmental Laws” means any and all present and future federal, state and local laws, statutes, ordinances, codes, rules, regulations, policies, and guidance documents, as well as orders, decrees, judgments or injunctions issued, promulgated or entered thereunder, relating to pollution, protection of the environment, use, handling, storage, transportation, treatment and disposal of Hazardous Substances, investigation and remediation of contamination in the environment, or occupational health and safety.

“Equipment” means all of the tangible materials, apparatus, structures, tools, supplies or other goods, including systems, subsystems, subassemblies and components provided by Contractor or any Subcontractor which are incorporated into the Facility or provided by Contractor as part of the Work in accordance with this Agreement.

“Estimates” has the meaning specified in Section 10.1(b).

“Excusable Events” means the following events to the extent that such event results in an actual delay in the performance of the Work, an increase in Contractor’s cost of performing the Work or otherwise materially affects Contractor’s performance hereunder:

- (i) delays which Contractor demonstrates are caused by (a) the failure of Owner to fulfill any of its material obligations under this Agreement, or (b) the failure of ABB to perform the ABB Scope in accordance with the ABB Purchase Order, except to the extent arising from a Force Majeure, to the extent such delay occurs without the fault or negligence of Contractor, its Subcontractors or other persons for whom either may be liable;
- (ii) an event of Force Majeure;
- (iii) the discovery of conditions at the Site of the kind specified in the second sentence of Section 4.18;

- (iv) the discovery of any Pre-Existing Hazardous Substance;
- (v) the occurrence of a Change of Law after the Commencement Date which affects the cost of Contractor's performance, the time required for such performance or any other applicable provision of this Agreement; or
- (vi) suspension of the Work, in whole or in part, pursuant to Section 24.4.
- (vii) an amendment to the ABB Purchase Order that materially affects the Work.
- (viii) the failure of ABB to achieve Substantial Completion, as defined in the ABB Purchase Order, by the Guaranteed Substantial Completion Date, as defined in the ABB Purchase Order.

"Exhibits" means all of the Exhibits attached to the Body of the Agreement and made a part hereof, as follows:

Exhibit A	Project Technical Scope
Exhibit B	Site
Exhibit C	Schedule
Exhibit D	Performance Testing
Exhibit E	Option Prices
Exhibit F	Contract Price, Pricing Page, and Progress Payment Schedule
Exhibit G	Payment Request
Exhibit H	Parent Guarantee
Exhibit I	Miscellaneous Reports
Exhibit J	Format of Total Project Integrated Schedule
Exhibit K	Record Drawings and Calculations
Exhibit L	Specified Subcontractors
Exhibit M	Rates
Exhibit N	Station Manuals
Exhibit O	Key Personnel
Exhibit P	Permits and Approvals
Exhibit Q	Submittals and Review
Exhibit R	Meetings and Progress Reports
Exhibit S	E. W. Brown Generating Station Site Regulations
Exhibit T	Full and Partial Releases
Exhibit U	Request For Modifications Proposal
Exhibit V	Intentionally Deleted
Exhibit W	Insurance
Exhibit X	Terminal Points

"Extended Warranty Period" has the meaning specified in Section 13.1.

“Facility” means the whole, or where the context admits, part of the gas turbine project to be installed at the E. W. Brown Generating Station as more particularly described in the Project Technical Scope.

“Final Completion” shall be deemed to have occurred when (i) Mechanical Completion has occurred, (ii) Substantial Completion has been achieved, (iii) all items identified on the Punch List have been completed, (iv) all Record Drawings and Design Documents not previously delivered to Owner have been delivered to Owner, (v) all liquidated damages for which Contractor is liable pursuant to Article 7 have been paid to Owner and (vi) all conditions and other requirements for Final Payment set forth in Section 8.9 have been satisfied, and all Work and other obligations of Contractor have been completed.

“Final Completion Date” means the date on which Final Completion occurs.

“Force Majeure” means any condition, event or circumstance, including the examples set forth below, but only if, and to the extent (i) such condition, event or circumstance is not within the reasonable control of the Party affected, (ii) such condition, event or circumstance, despite the exercise of reasonable diligence, cannot be prevented, avoided or removed by such Party, (iii) such condition, event or circumstance materially adversely affects the ability of the affected Party to fulfill its obligations under this Agreement, (iv) the affected Party has taken all reasonable precautions, due care and reasonable alternative measures in order to avoid the effect of such condition, event or circumstance on the affected Party’s ability to fulfill its obligations under this Agreement and to mitigate the consequences thereof and (v) such condition, event or circumstance is not the result of any failure of such Party to perform any of its obligations under this Agreement. By way of example, such events, conditions and circumstances shall include war, rebellion, sabotage, riots, insurrection, public disorder, fires, floods, volcanic eruption, tidal wave, earthquake, quarantine, explosions or other natural catastrophes or Acts of God, and changes in Applicable Laws after the Effective Date. Notwithstanding the foregoing, Force Majeure shall not include the following events, conditions or circumstances:

- (a) late delivery of Equipment or any utilities (other than those to be provided by Owner) required for the Work and to be provided by Contractor or its Subcontractors caused by oversold market conditions, currency or exchange risks,; unless such late delivery is directly due to the occurrence of an independent condition, event or circumstance described in and meeting the conditions of the first full paragraph of this definition; or
- (b) late performance caused by Contractor’s failure to engage qualified Subcontractors or to hire an adequate number of supervisors and labor; or
- (c) late performance as a consequence of any legal or governmental decisions related to Contractor’s insolvency; or
- (d) machinery or Equipment breakdown of Contractor or its Subcontractors except where such breakdown is directly due to the occurrence of an independent condition,

event or circumstance described in and meeting the conditions of the first full paragraph of this definition; or

- (e) failure of a Party to pay amounts due and owing under this Agreement; or
- (f) unfavorable weather, except severe weather which directly prevents or delays critical path activity at the Site; or
- (g) strikes or other labor disturbances at the Site by employees of Contractor or its Subcontractors.

"Gas" means the fuel supplied by Owner which meets the specifications set forth in Attachment 2 to Exhibit D.

"Governmental Authorities" means any federal, state or local government agency, authority, branch, department, court or any subdivisions thereof, having, or claiming, a regulatory interest in, or jurisdiction over, the Work, the Facility, the Site, this Agreement or the Parties.

"Guaranteed Substantial Completion Date" means August 1, 1999, which date, except with respect to Section 7.1(b), may be adjusted pursuant to the terms and provisions of this Agreement.

"Hazardous Substance" means any contaminant, pollutant, toxic substance, hazardous substance or hazardous waste, radioactive substance or radioactive waste, industrial substance or waste, asbestos, polychlorinated biphenyls, petroleum or petroleum-derived substance or waste, or any toxic or hazardous constituent of any substance or waste, as regulated under or defined by Environmental Laws.

"Interest Rate" has the meaning specified in Section 25.9.

"Key Periods" means the Summer Peak, the Winter Peak, and such other times specified by Operator when the Units are needed to run for Operator's system purposes.

"Lien" has the meaning specified in Section 20.3.

"Major Subcontractor" means a Subcontractor providing labor, materials and/or Equipment in relation to the Work which has a value of \$250,000 or more.

"Mechanical Completion" means when, except for minor items of Work that do not affect the performance or operation of the Facility such as painting and so forth, (i) all Equipment, including the ABB Equipment, has been installed substantially in accordance with Exhibit A and the terms of this Agreement and checked for alignment, lubrication, rotation, and hydrostatic and pneumatic pressure integrity; (ii) all Facility systems have been installed, cleaned and statically tested; (iii) the appropriate systems have been flushed and cleaned out as necessary; (iv) all the Equipment, including the ABB Equipment, and systems can be operated in a safe and prudent manner; (v) the entire Facility is ready to commence commissioning, testing and integrated operations without the use of temporary Equipment or installations; (vi) an initial Punch List shall

have been established and mutually agreed upon by Owner and Contractor, and (vii) Station Manuals shall have been provided pursuant to Exhibit N. It is understood that the turnover process of Facility systems and subsystems will be accomplished in incremental steps, in accordance with the turnover procedures set forth in Article 6, the sum total of which, when completed, shall constitute Mechanical Completion.

"Mechanical Completion Date" means the date on which Contractor has successfully achieved Mechanical Completion, or June 18, 1999.

"Modification" means (i) a written amendment to this Agreement signed by all Parties hereto, (ii) a Change Order or (iii) an Owner Authorization.

"Notice to Proceed" means the written notice issued by Owner to Contractor authorizing, without limitation, the full commencement of the Work.

"Oil" means fuel oil meeting the specifications set forth in Attachment 2 to Exhibit D.

"Operator" means Kentucky Utilities Company, or its successor and assigns.

"Owner" means LG&E Capital Corp., provided, however, at Owner's option, all or any portion of its rights or obligations hereunder may be performed from time to time by an affiliate.

"Owner Authorization" has the meaning specified in Section 10.1(d).

"Owner Default" has the meaning set forth in Section 24.3(a).

"Owner's Representative" has the meaning set forth in Section 5.1.

"Owner Response Period" has the meaning specified in Section 10.1(c).

"Party" or "Parties" means either Owner or Contractor or both, as the context or the usage of such term may require.

"Payment Request" means a written request by Contractor to Owner for payment, completed in the form required by Exhibit G together with the required documentation.

"Person" means any individual, company, corporation, firm, joint venture, partnership, association, limited liability entity, organization, trust, Governmental Authority or similar entity.

"Pre-Existing Hazardous Substance" means a Hazardous Substance existing on the Site as of the Commencement Date.

"Prime Rate" means the lesser of (a)(i) the per annum (365 or 366 calendar days, as appropriate) prime or base commercial lending rate of the Bank of America, N.A. as announced from time to time or (ii) an equivalent bank rate agreed to by the Parties or (b) the maximum rate permitted by law.

"Professional Standards" means those standards and practices, used by, and the degree of skill and judgment exercised by recognized national engineering and construction firms when performing services on utility power plants similar to the Facility.

"Progress Payment Schedule" means the schedule of values as set forth in Exhibit F, as adjusted in accordance with this Agreement.

"Project" means the development, construction and completion of the Facility as contemplated in this Agreement.

"Project Technical Scope" means and refers to Exhibit A attached hereto, and documents specified therein that define generally the requirements and the concept design, scope and intent of the Facility.

"Provisional Substantial Completion" shall have occurred when all of the requirements for Substantial Completion have been achieved except that, with respect to clauses (iii) and (iv) of the definition of Substantial Completion, such achievement has occurred in respect of only one Unit.

"Punch List" or "Punch List Items" means and refers to a comprehensive list prepared upon Mechanical Completion of the Facility and which may be added thereafter to identify those insubstantial details of construction and mechanical adjustment which require repair, completion, correction or re-execution, the noncompletion of which does not interfere with Owner's occupancy, use and commercial operation, safety or reliability of the Facility.

"Quad-Centennial Rule" means (a) if the year is divisible by 4, it is a leap year, (b) the year is also divisible by 100, then it is not a leap year, (c) the year is also divisible by 400, then it is a leap year.

"Record Drawings" means the surveyed record documents (as-built), as identified in Exhibit K, in the form or forms (including hard copy and CAD diskette) reasonably specified by Owner.

"Request For Modifications Proposal" has the meaning specified in Section 10.1(a).

"Retainage" means the amount retained in accordance with Section 8.12 or the letter of credit provided by Contractor pursuant to Section 8.12.

"Schedule" means the critical path method schedule of key dates and milestones for completion of the Work attached hereto as Exhibit C, as such schedule may be adjusted pursuant to this Agreement.

"Scheduled Final Completion Date" means November 1, 1999, which date may be adjusted pursuant to the terms and provisions of this Agreement.

"Senior Officer" has the meaning set forth in Section 23.1(b).

“Site” means the E. W. Brown Combustion Turbine Generating Facility located in Burgin, Kentucky.

“Station Manuals” has the meaning specified in Exhibit N.

“Subcontractor” means and refers to a person or entity (at any tier) who has a contract, agreement or other arrangement to perform a portion of the Work or to supply materials or Equipment in connection with the Work.

“Substantial Completion” shall be deemed to have occurred when (i) all Equipment (including the ABB Equipment) has been delivered and the Work (including the ABB Work) is complete except for Punch List Items, (ii) the Equipment (including the ABB Equipment) is mechanically and electrically sound and capable of operation without damage to property or person in the ordinary course of business, (iii) the performance tests set forth in Section 3.1 and Section 3.2 of Exhibit D have been successfully completed and have demonstrated that the Threshold Net Heat Rate for each Unit and Threshold Net Power Output for each Unit have been achieved and the CEMS Verification Tests set forth in Section 3.4.2 of Exhibit D have been passed, (iv) all necessary system adjustments identified during the start-up and testing process have been made; (v) special tools necessary for the operation, maintenance or repair of the Equipment, the Work or any part or component thereof have been delivered to Owner, and (vi) Contractor has completed the other obligations required by this Contract to be performed prior to Substantial Completion.

“Substantial Completion Date” means the date on which Substantial Completion is successfully achieved.

“Summer Peak” means the months of June, July, August and September.

“Terminal Point(s)” means the points of inter-connection and responsibilities associated therewith as set forth in Exhibit X.

“Threshold Net Heat Rate” means one hundred five percent (105%) of the Guaranteed Net Gas Heat Rate, when calculated in accordance with Section 3.7.2 of Exhibit D.

“Threshold Net Power Output” means ninety-five percent (95%) of the Guaranteed Net Gas Power Output, when calculated in accordance with Exhibit D.

“Turnover Acknowledgment” has the meaning specified in Section 6.2(b).

“Unit(s)” means a complete Gas Turbine Generator GT24A with auxiliaries to be delivered by ABB to Owner in accordance with the Purchase Order.

“Warranty Period” has the meaning specified in Section 13.1.

“Winter Peak” means the months of December, January and February.

“Work” means all design, engineering, procurement, construction, training, commissioning, testing and other services (except the ABB Work), including all items, materials and Equipment (except the ABB Equipment) which are necessary or appropriate to complete the Facility in accordance with this Agreement and which will allow the Facility to perform as contemplated by the ABB Purchase Order and Exhibit D hereto, whether or not such items, services or obligations are specifically specified herein. The Work shall specifically include the delivery, handling and storage of the ABB Equipment as well as the coordination, scheduling and oversight of the ABB Scope. The Work also specifically includes all work and services performed prior to the date hereof pursuant to the terms of the limited notice to proceed letter dated October 14, 1998.

“Working Days” means calendar days other than Saturdays, Sundays or holidays.

“Year 2000 Compliant” means that any computer Equipment, product, application or system, when configured and used according to the documented instructions provided to Owner, will, without manual intervention or interruption: (i) correctly handle and process date information before, during and after January 1, 2000, accepting date input, providing date output and performing calculations, including sorting and sequencing, on dates or portions of dates; (ii) function according to the documentation during and after January 1, 2000, without changes in operation resulting from the advent of the new century; (iii) where appropriate, respond to two-digit date input in a way that resolves any ambiguity as to century in a disclosed, defined and predetermined manner; (iv) store and provide input of date information in ways that are unambiguous as to century; and (v) manage the leap year occurring in the year 2000, following the Quad-Centennial Rule.

ARTICLE 2

EFFECTIVENESS AND NOTICE TO PROCEED

2.1 Effectiveness; Notice to Proceed. This Agreement shall become effective and the Parties shall become bound by the conditions applicable to their conduct upon execution by the Parties and delivery of the Notice to Proceed to Contractor on October 14, 1998.

2.2 Conditions Precedent to Obligations.

2.2(a) Owner Conditions. The issuance of the Notice To Proceed by Owner to Contractor shall be subject to the satisfaction or written waiver by Owner of the conditions precedent set forth below.

- (i) Contractor shall have advised Owner in writing that as of the date the Notice to Proceed is issued there exist no grounds to the knowledge of Contractor after due inquiry, on which a claim by Contractor pursuant to Article 9 or Section 10.2 may be based.
- (ii) Contractor shall have delivered the guaranty of Black & Veatch, LLP, as required by Section 25.14.

- (iii) Contractor shall have provided to Owner copies of insurance policies and certificates of all insurance coverages required to be obtained by such party in accordance with Article 21.

2.2(b) Contractor Conditions. The obligation of Contractor to commence the Work shall be subject to the satisfaction or written waiver by Contractor of the conditions precedent set forth below.

- (i) Owner shall give Contractor access to the Site in order to permit Contractor to commence and continue the Work as contemplated by this Agreement.
- (ii) Owner shall have provided to Contractor copies of insurance policies and certificates of all insurance coverages required to be obtained by such party in accordance with Article 21.

ARTICLE 3

GENERAL PROVISIONS

3.1 Intent of Contract Documents. It is the intent of the Parties that this Agreement be a turnkey contract (except for the ABB Scope) with a fixed Contract Price which shall not be increased, except in accordance with Article 10.

3.2 Independent Contractor. Contractor shall perform and execute the provisions of this Agreement as an independent contractor to Owner and shall not in any respect be deemed (or act as) an agent of Owner for any purpose or reason whatsoever.

3.3 Subcontracting. Subject to Section 3.4, Contractor shall have the right to have any portion of the Work performed by Subcontractors, including entities related to or affiliated with Contractor. No contractual relationship shall exist between Owner and any Subcontractor with respect to the Work to be performed hereunder. Contractor shall be fully responsible for all acts, omissions, failures or faults of any Subcontractor as fully as if they were the acts, omissions, failures or faults of Contractor. The exercise of such right to subcontract hereunder shall not in any way increase the costs, expenses or liabilities of Owner hereunder. Owner shall communicate with Subcontractor only through Contractor, provided that it may communicate directly with a Subcontractor with Contractor's advance approval.

3.4 Specified Subcontractors. For those items of service and Equipment specified in Exhibit L, Contractor will use the services of, or procure Equipment from, only those Subcontractors specified in Exhibit L. Contractor will be responsible for the negotiation of the terms and conditions of any purchase orders or subcontracts entered into with such identified Subcontractors (including cost, performance guarantees and equipment warranties), and it will enter into written purchase orders and/or subcontracts directly with such Subcontractors, it being the intent of the Parties that such Subcontractors shall be subcontractors of Contractor and not of

Owner. Contractor's negotiations with such Subcontractors will be conducted within the parameters and in accordance with the terms set forth in the applicable specifications set forth in the detailed design for the Facility and this Agreement. Contractor agrees that before awarding a Major Subcontract, it will provide Owner a ten-day period after delivery of the specifications, to comment on said specifications. Notwithstanding Owner's right to review and comment in accordance with this Section 3.4, no such review or comment shall relieve Contractor or otherwise serve as a defense to Contractor's full performance of its obligations hereunder.

3.5 Assignment Provisions in Subcontracts. All subcontracts or other arrangements between each Subcontractor and Contractor having a contract price or anticipated value in excess of \$500,000 shall contain provisions which Contractor shall not waive, release, modify or impair, giving Contractor an unrestricted right to assign the relevant subcontract and benefits, interests, rights and causes of action arising under it to Owner. Contractor agrees to use reasonable efforts to secure in each Subcontract provisions whereby Owner may subsequently assign the Subcontract as it requires. Contractor shall notify Owner as to whether any subcontract or other arrangements between the Subcontractor and Contractor has a contract price or anticipated value in excess of \$500,000.

3.6 Assignment of Subcontracts. Contractor shall, if so requested by Owner after termination of Contractor pursuant to Article 24 or the expiration of the Warranty Period or Extended Warranty Period, assign the benefit of any Subcontractor warranty to Owner, an affiliate of Owner, or an operator of the Facility.

3.7 Interpretation.

3.7(a) Headings. Titles and headings are inserted for convenience only and shall not be used for the purposes of construing or interpreting this Agreement.

3.7(b) Plural/Singular. Words importing the singular also include the plural and vice versa.

3.7(c) References. References to natural persons or parties includes firms, corporations or any other entity having legal capacity.

3.7(d) Gender. Words importing one gender include the other gender.

3.7(e) Without Limitation. The word "include" and "including" are not words of limitation and shall be deemed to be followed by the words "without limitation."

3.7(f) Amendments. All references contained herein to contracts, agreements or other documents shall be deemed to mean such contracts, agreements or documents, as the same may be modified, supplemented or amended from time-to-time.

3.7(g) Industry Meanings. Words and abbreviations not defined in this Agreement which have well-known technical or design, engineering or construction industry meanings are used in this Agreement in accordance with such recognized meanings.

3.8 Inclusion: Order of Precedence. The Body of this Agreement and the Exhibits hereto shall be considered complementary and what is required by one shall be binding as if required by all. The failure to specifically list a requirement in one document, once this requirement is specifically listed in another, shall not imply the inapplicability of such requirement and Contractor shall provide as part of this Agreement all items required to conform to the Project Technical Scope and the standards herein contained. In the event of a conflict between the Body of this Agreement and the Exhibits, the Body of this Agreement shall govern. Later dated Exhibits shall take precedence over earlier dated Exhibits. The latest date of an amendment or Change Order shall take precedence over that part of this Agreement which it supersedes.

ARTICLE 4

CONTRACTOR'S RESPONSIBILITIES

4.1 Performance of the Work. Contractor hereby covenants and agrees that it shall duly and properly perform and complete the Work and its other obligations hereunder in accordance with this Agreement, including, the Schedule and Applicable Law. Contractor further covenants and agrees that it shall provide and pay for all items or services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated into the Work, including, all design, engineering, procurement, other than the ABB Scope (other than coordination, scheduling and oversight thereof), installation and construction services, all administration, management, training and coordination, all start-up, commissioning and testing services, all labor, materials, construction aids, furnishings, Equipment, supplies, insurance; permits, licenses, inspections, tools, machinery, storage and transportation, and all other items, facilities and services. Work or Equipment not specifically delineated in this Article 4 or elsewhere in this Agreement (except ABB Equipment or ABB Work) shall be performed and provided by Contractor to the extent necessary to reflect Professional Standards and to ensure that the Facility is capable of operating as contemplated.

4.2 Professional Standards. Contractor warrants that it will perform and complete the Work and other obligations hereunder in accordance with Applicable Law, this Agreement and Professional Standards.

4.3 Sufficient Personnel. Contractor shall, at all times during the term of this Agreement, employ a sufficient number of qualified persons, who shall be licensed, if required by the Applicable Law, so that the Work and other obligations to be performed by Contractor hereunder are completed in an efficient, prompt, economical and professional manner. Without in any way limiting the foregoing, such personnel shall include sufficient qualified buyers, inspectors, and expeditors necessary to provide Equipment, materials and supplies in a timely manner consistent with the Schedule. Contractor shall provide all technical services and supervision for start-up, commissioning and testing. Contractor shall also provide all construction services and craft personnel as required for system adjustments during start-up, commissioning and testing.

4.4 Supervision. Contractor shall supervise, coordinate and direct the Work, using Contractor's best skill, judgment and attention.

4.5 Discipline. Contractor shall enforce strict discipline and good order among Contractor's employees, Subcontractors' employees and any other persons carrying out portions of the Work. Contractor shall at all times take all necessary precautions to prevent any unlawful or disorderly conduct by or amongst its employees and those employees of Subcontractors and for the preservation of peace and protection of persons and property at, or in the neighborhood of, the Site against the same. Contractor shall not permit the employment of unfit persons or persons not skilled in tasks assigned to them. Contractor shall be responsible for labor peace on the Site, shall at all times exert its best efforts and judgment as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes or strikes where reasonably possible and practical under the circumstances.

4.6 Contractor's Key Personnel. Exhibit O contains a list of Contractor's key personnel who will be responsible for supervising the performance of Contractor's obligations hereunder. Such list shall include the designation of Contractor's principal representative (the "Contractor's Representative"), who shall be Contractor's authorized representative having the responsibility and authority to direct and manage the Work and who shall receive and initiate all communications from and with Owner and be authorized to make decisions related to the Facility and bind Contractor. Any replacement of key personnel as set forth in Exhibit O shall be subject to the prior written approval of Owner, which approval shall likewise not be unreasonably withheld. Contractor's Representative shall act as Contractor's liaison with Owner and shall have the authority (i) to administer this Agreement on behalf of Contractor, (ii) to perform the responsibilities of Contractor hereunder, and (iii) to bind Contractor.

4.7 Design and Engineering. Based on the Project Technical Scope, Contractor or its Subcontractors shall engage all supervisors, engineers, designers, draftsmen and others necessary for the preparation of all drawings and specifications for the Work, prepare working drawings and specifications setting forth in detail the requirements for the construction of the Facility in accordance with this Agreement (the "Design Documents"). Owner shall be entitled, but not obligated, to review and comment upon the Design Documents in accordance with the provisions of Exhibit Q prior to Contractor commencing with any subsequent phase of the Work, and the Design Documents shall be deemed final when stamped by Contractor as "issued for permit or for construction," except to the extent such documents are subject to Owner review and comment in accordance with Exhibit Q.

4.8 Quality Control. Contractor shall develop, implement and maintain a plan for the Facility which shall include: Facility safety; quality assurance; management and control of the design, engineering, procurement and construction services; and management and control of Subcontractors and their subcontracts. Such plan shall be designed to meet the requirements of Applicable Laws and Codes and shall be submitted to Owner within thirty (30) Days of the Commencement Date for Owner's review and comment. Contractor shall also require Major Subcontractors to establish, implement and maintain appropriate quality control and safety programs with respect to their respective portions of the Work.

4.9 Intentionally Omitted.

4.10 Equipment Subcontractor Presence at Tests. Contractor shall be responsible for notifying and paying for any Equipment Subcontractor other than ABB representative that it reasonably deems necessary to be present at (i) any of the training sessions, (ii) erection supervision, (iii) commissioning or (iv) the performance tests set forth in Section 3.0 of Exhibit D. Contractor shall coordinate with ABB to obtain the presence of its representatives as necessary but not to exceed the maximum technical field assistance ABB has agreed to provide to Owner under the ABB Purchase Order.

4.11 Current Records; Record Drawings. Contractor shall maintain in good order at the Site at least one record copy of the design and engineering documents, drawings, specifications, product data, samples, and modifications, marked currently to record changes made during construction, all of which shall be available to Owner for inspection at all times. Prior to and as a condition of Final Completion, all of the preceding items which are applicable to the completed portion of the Work shall be delivered to Owner, as well as a set of reproducible Record Drawings (in formats reasonably requested by Owner) showing all changes made to the drawings during construction.

4.12 Transportation Costs and Inspection. Contractor shall arrange and pay for all transportation, storage and transfer costs in connection with the Work, including unloading, hauling and delivery of the ABB Equipment to the Site and the proper storage of the ABB Equipment upon its delivery to Owner as provided in the ABB Purchase Order.

Contractor agrees to inspect all shipments made by ABB under the ABB Purchase Order within five days of the delivery of each such shipment to the Site. Contractor shall promptly report any damage or loss actually observed upon said inspection to Owner.

4.13 Station Manuals. Contractor shall prepare and provide to Owner the Station Manuals in accordance with the requirements of Exhibit N.

4.14 Cooperation with ABB. Contractor acknowledges that the ABB Equipment and the ABB Work have been acquired by Owner pursuant to the terms of the ABB Purchase Order, portions of which have been provided to Contractor. Contractor understands and agrees that the scope of its Work hereunder includes all Work, services, labor, Equipment necessary, when combined with the ABB Scope shall fully complete every aspect of the Project and shall permit the Facility to achieve Substantial Completion by the Guaranteed Substantial Completion Date and Final Completion by the Scheduled Final Completion Date. Contractor shall coordinate its Work with ABB and shall not delay, hinder or otherwise interfere with the performance by ABB of the ABB Work or the provision, start-up, commissioning and testing of the ABB Equipment. Contractor shall assist Owner in commenting upon documents submitted by ABB for review. Such assistance shall be prompt and timely.

4.15 Control of Work. Contractor shall be solely responsible for all construction means, methods, techniques, sequences, procedures, and safety, quality assurance and quality control programs in connection with the performance of the Work.

4.16 Emergencies. In the event of any emergency endangering life or property, Contractor shall take such action as may be reasonable and necessary to prevent, avoid or mitigate injury, damage or loss and shall, as soon as possible, report any such incidents, including Contractor's response thereto, to Owner.

4.17 Local Conditions. Contractor represents that it has taken steps necessary to ascertain the nature and location of the Work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the Facility, the Site and/or the performance of the Work, including (i) conditions bearing upon access, egress, transportation, waste disposal, handling, laydown, parking and storage of materials; (ii) the availability of labor, water, electric power, other utilities and roads; (iii) uncertainties of weather or other observable physical conditions at the Site; and (iv) the character of Equipment and facilities needed preliminary to and during the performance of the Work. Any failure by Contractor to take the actions described in this Section will not relieve Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the Work, or for proceeding to successfully perform the Work without additional expense to Owner; provided however, the terms and provisions of this Section shall not be construed to limit or restrict Contractor's rights set forth in Article 9 and 10.

4.18 Site Conditions. All conditions, including geotechnical, topographical, geological, seismic, hydrographical, hydrological, or physical conditions related to the Facility's foundation design or construction shall neither be deemed concealed or unknown conditions under this section nor constitute Force Majeure for purposes of this Agreement; it being expressly acknowledged and agreed by Contractor that the cost and delay risk for any such conditions shall be borne by Contractor, and that Contractor shall have no claim for an adjustment in the Schedule or the Contract Price as a result of such conditions. If, in performance of the Work, Contractor encounters unknown, concealed, man-made, subsurface conditions at the Site, then notice of such conditions shall be promptly given to Owner by Contractor and if Owner and Contractor thereafter mutually determine that such conditions are, in fact, of such nature, then Contractor will be entitled to seek an equitable adjustment in the Contract Price or the Schedule, or both, as provided in Article 9. Notwithstanding the foregoing, the discovery of Hazardous Substances at the Site shall be handled as provided in Article 19 hereof.

4.19 Access. Contractor shall provide Owner and Operator, their employees, agents, representatives and invitees with reasonable access to the Work wherever located for observation and inspection, provided, that Contractor may provide, and Owner and Operator shall accept, an escort or any safety measures that Contractor, in its sole discretion acting reasonably, deems necessary or advisable.

4.20 Use of Site. Contractor shall confine its operations at the Site to areas permitted by Applicable Law, the Exhibits and this Agreement. Contractor shall prepare, implement and enforce Site rules necessary for safe, efficient and proper prosecution of the Work. Such rules shall, at a minimum, comply with the provisions of Exhibit S, and Applicable Laws. Contractor

shall not interfere with the conduct of Operator's business and shall use its best efforts to cooperate and coordinate the performance of the Work with the requirements and business operations of Operator.

4.21 Compliance With Law. Contractor shall comply, and shall cause the Subcontractors to comply, with all Applicable Law in effect from time to time relating to the Work and/or the Facility and shall give all applicable notices pertaining thereto. Contractor shall ensure that the Work as designed and constructed complies and when operated is capable of complying with Applicable Law.

4.22 Permits and Approvals. Contractor shall secure and pay for any and all permits, licenses, governmental fees, inspections and approvals necessary for the proper execution and completion of the Work, including, certificates of occupancy as set forth in Exhibit P; except those permits, licenses, governmental fees, inspections and approvals identified on Exhibit P attached hereto, which shall be obtained by Owner at its sole cost and expense. Contractor shall assist Owner as provided in Section 5.7 and in connection with the design, engineering, interconnection and other matters involving Operator.

4.23 Periodic Reports & Meetings.

4.23(a) Status Report. Within seven (7) Days after the end of each calendar month after the Commencement Date, Contractor shall prepare and submit to Owner and others it may designate a status report, which report shall cover the previous calendar month and shall be prepared in a manner and format acceptable to Owner and shall comply with the requirements of Exhibit R and shall include (i) a detailed description of the progress of the Work, including a critical path chart illustrating the progress which has been made, (ii) a statement of any significant issues which remain unresolved, and Contractor's recommendations for resolution of the same, (iii) an updated report as to Contractor's adherence to the Schedule, (iv) a summary of any significant Facility events which are scheduled or expected to occur during the following thirty (30) Days, and (v) such additional information reasonably requested by Owner or Operator.

4.23(b) Attendance and Participation. Until Final Completion, Contractor shall attend and participate in meetings on a regular basis with Owner, Operator and ABB for the purpose of discussing the status of the Work and the ABB Scope and anticipating and resolving problems. Such meetings may also include, at the request of Owner, consultants of such persons. Other persons shall be permitted to attend at the request of Contractor, Owner or Operator, which consent shall not be unreasonably withheld. Notes of such meetings shall be prepared by Owner.

4.24 Signage. Contractor shall not display, install, erect or maintain any advertising or other signage at the Site without Owner's prior written approval.

4.25 Spare Parts. Contractor shall provide customary spare parts for the Work as are normally necessary in the construction and commissioning of a project of this type whether or not the need for such spare parts arises from the activities of Contractor or ABB. Contractor shall

also specify, recommend and provide pricing information for spare parts that Owner, in its discretion, may wish to obtain.

4.26 Interference with Traffic. Contractor shall carry out the Work so as not to interfere unnecessarily or improperly with access to, use and occupation of, public or private roads and footpaths or to or of properties whether in the possession of Owner or of any other person. Contractor shall communicate with, and ascertain the requirements of, all Governmental Authorities and Operator in relation to vehicular access to and egress from the Site and shall comply with those requirements. Contractor shall be deemed to have satisfied itself as to and shall be fully responsible for the routing for delivery of heavy or large loads to the Site.

4.27 Supply of Water and Disposal of Sewage. Contractor shall provide on the Site an adequate supply of drinking and other water and sanitary sewage services for the use of those working on the Site.

4.28 Cutting and Patching. Contractor shall be responsible for all cutting, fitting and patching which is required to complete the Work or to make its parts fit together properly with the ABB Scope and the existing generating facility. It is the intent of this Agreement that all areas requiring cutting, fitting and patching shall be restored to a completely finished equivalent to new condition.

4.29 Cleaning Up. Contractor shall, at all times during the term of this Agreement, keep the Site and surrounding streets, properties, sidewalks and other areas free from waste materials, Equipment, rubbish, debris and other garbage, liquid and non-liquid materials whether spilled, dropped, discharged, blown out or leaked, and shall employ adequate dust control measures. Chemicals used in cleaning processes shall be properly handled and shall be disposed of properly. Prior to Final Completion, Contractor shall remove from the Site all tools, trailers, surplus and waste materials, and rubbish, and shall clean all glass (inside and out), remove all paint spots and other smears, stains or scuff marks, clean all plumbing and lighting fixtures, wash all concrete, tile and finished floors, and otherwise leave the Site neat and clean. If Contractor fails to clean up as provided herein, Owner may do so and the cost thereof shall be charged to Contractor.

4.30 Provision of Information. Contractor shall provide such information and complete the forms therefor set forth in Exhibit I upon Owner's request or as otherwise required by such forms.

ARTICLE 5

OWNER RIGHTS, DUTIES & OBLIGATIONS

5.1 Key Personnel. Owner shall designate, from time to time, one or more individuals who will act on behalf of Owner in connection with the Facility, together with the scope of their authority. Among such designees, there shall be appointed a principal representative of Owner (the "Owner's Representative"), who shall be Owner's authorized representative, and who shall

receive and initiate all communications from and with Contractor and be authorized to render decisions related to the Facility.

5.2 Owner Approvals. Owner shall be entitled to review, approve, comment on or evaluate any plans, drawings, specifications or other documents to the extent provided in Exhibit A or Exhibit Q, provided, however, Owner shall have no responsibility or liability for the accuracy or completeness of such documents, for any defects, deficiencies or inadequacies therein or for any failure of such documents to comply with the requirements set forth in this Agreement; the responsibility for all of the foregoing matters being the sole obligation of Contractor. In no event shall any review, approval, comment or evaluation by Owner relieve Contractor of any liability or responsibility under this Agreement, it being understood that Owner is at all times ultimately relying upon Contractor's skill, knowledge and professional training and experience in preparing any plans, drawings, specifications or other documents.

5.3 Utilities, Fuel & Supplies. Owner shall, at its sole cost and expense, provide (i) construction power, fuels for the Facility (Gas, Oil, as applicable), telephone service (excluding monthly fees and long distance charges), (ii) potable water and waste water disposal for the Facility, (iii) access to the Terminal Points as specified in Exhibit X and (iv) all Consumables required for the initial fill and start-up and testing activities.

5.4 Construction Means & Methods. Owner shall have no control over or charge of, and shall not be responsible for, construction means, methods, techniques, sequences or procedures, or for safety precautions or programs, in connection with the Work, all of which are the sole responsibility of Contractor.

5.5 Right to Apply Monies. Owner shall have the right, but not the obligation, to deduct from any funds or monies due or to become due (or draw on the Retainage) to Contractor any amounts actually due to Owner from Contractor as a result of any losses, expenses, damages, obligations or liabilities for which Contractor is responsible pursuant to the terms and provisions of this Agreement.

5.6 Inspection of Work.

5.6(a) Access to Inspect. Owner and its respective employees, agents, representatives and designees, are hereby granted access by Contractor to the Work at all times so as to enable such parties to witness and inspect the Work. Said access will be consistent with the Schedule requirements of Contractor. Contractor shall cooperate with Owner in scheduling visits to the Site for Owner or its designees for purposes of inspecting the Work. Contractor shall not cover Work that Owner is entitled to inspect before covering as specified in Exhibit A as to which Owner has specially requested, in writing, to observe before covering. In the event Contractor covers any such Work without giving reasonable opportunity to Owner to observe such Work, Contractor shall, at its sole cost and expense, uncover such Work for observation if requested by Owner. If a portion of the Work has been covered which Owner has not specifically requested to observe prior to its being covered, Owner may request to see such Work and it shall be uncovered by Contractor. If such Work is in accordance with this Agreement, costs of uncovering and replacement shall, by appropriate Change Order, be charged to Owner, and, if applicable, the

Schedule will be equitably adjusted. If such Work is not in accordance with this Agreement, Contractor shall pay all such costs.

5.6(b) No Relief. No inspection or review of, or failure to inspect or review, the Work by any individual or entity referenced in the preceding Section 5.6(a) shall relieve Contractor of its obligation to properly execute and complete the Work.

5.7 Owner's Scope. Owner is responsible for obtaining those permits and licenses which customarily are Owner's responsibility and which are set forth in Exhibit P. Contractor, at its expense, will reasonably assist and support Owner's efforts to obtain permits, licensing and approvals.

5.8 Owner's Right to Carry Out the Work. If Contractor defaults under this Agreement or neglects to carry out the Work in accordance with this Agreement and fails within a ten (10) calendar day period after receipt of written notice from Owner to take steps to commence and continue correction of such default or neglect with diligence and promptness, Owner may, without prejudice to any other rights or remedies Owner may have under this Agreement, including declaring Contractor in default, and with or without terminating this Agreement correct such deficiencies, and either (i) deduct an amount equal to the expenditures incurred by Owner in so doing from amounts due or to become due to Contractor or (ii) or draw on the Retainage.

5.9 Owner's Rights Not Limited. The rights and remedies provided in this Article 5 shall be in addition to, and not in limitation of, any other rights or remedies otherwise available to Owner under this Agreement.

5.10 Operating Personnel. Owner shall supply personnel for the operation and maintenance of the Facility. Owner's obligation to provide personnel hereunder may be fulfilled by the provision of its employees or employees of a third party. Operations personnel supplied by Owner shall be qualified individuals who shall, prior to Mechanical Completion, and, where necessary, be properly licensed to perform the services required of them.

5.11 Spare Parts. Contractor shall be entitled to use spare parts that Owner may, from time to time, have on hand, provided however, Contractor shall, at its sole cost and expense promptly replace any spare part it uses.

5.12 Contractor's Personnel. Owner shall have the right to object to any representative or person employed by Contractor who engages in misconduct, is incompetent or negligent while on the Site. Contractor shall remove such person from the Site upon receipt of Owner's notice to that effect. Any cost for replacement personnel shall be at Contractor's expense.

5.13 Revenue. Owner shall be entitled to all revenue derived from or in connection with the Facility.

ARTICLE 6

SCHEDULE

6.1 Commencement. Contractor shall commence performance of the Work and continuously and diligently fulfill its obligations under this Agreement upon its receipt of the Notice to Proceed, the date of which shall be deemed the "Commencement Date."

6.2 Turnover of the Systems. Not less than sixty (60) days prior to commencing the turnover process contemplated by this Article 6, Contractor shall provide a written turnover and start-up plan for Owner's review and comment. Owner shall have fourteen (14) days to review such plan and provide written comments to Contractor. Owner and Contractor shall mutually agree on the final turnover and start-up plan prior to its implementation. If Owner fails to comment within the specified fourteen (14) day period, Contractor's proposed plan shall be deemed acceptable by Owner. Thereafter, Contractor's turnover of Facility systems and subsystems shall be accomplished as follows:

6.2(a) Ready for Turnover. When Contractor deems that it has achieved completion of construction of a Facility system or subsystem (which may include one or more items of the Work (such as Equipment) in accordance with this Agreement, including, static integrity tests, alignment, electrical continuity tests, lubrication and demonstration of readiness for operation as appropriate (but exclusive of Punch List Items), Contractor shall notify Owner's Representative in writing that the Facility system or subsystem is ready for turnover to Owner.

6.2(b) Turnover Acknowledgment. Owner shall agree that the Facility system or subsystem is ready for turnover in writing ("Turnover Acknowledgment") within two (2) Days of receipt by Owner's Representative of notification from Contractor, unless the Facility system or subsystem (i) contains deficiencies which preclude safe testing, safe commissioning or safe operation; (ii) has not been flushed and cleaned out as necessary or appropriate; (iii) requires Work which has not been completed and which does not constitute a Punch List Item; or (iv) materially differs from the system or subsystem required under this Agreement. All other deficiencies and uncompleted items of Work shall be identified as a Punch List Item to Contractor with Owner's written notification of acceptance. Owner shall endeavor to ensure that the Punch List contains all deficiencies and incomplete items of Work with respect to the Facility system or subsystem submitted for Acceptance. Should Owner fail to respond within two (2) Days of receipt of Contractor's notice of such readiness, unless Contractor and Owner mutually agree in writing to extend this time period, the Facility system or subsystem shall be deemed to be turned over to Owner in its entirety as submitted. Notwithstanding the foregoing, if the turnover of Facility systems or subsystems by Contractor is not made in accordance with the agreed upon turnover schedule and as a result Owner is unable to accept or reject such Facility system or subsystem within the applicable two (2) Day period, as set forth above, Owner and Contractor shall mutually agree upon a reasonable extension of the two (2) Day Turnover Acknowledgment period for the affected Facility systems or subsystems, which extension shall reflect the nature of the affected Facility system or subsystem.

6.2(c) Deficiencies. If Owner reasonably believes that any of the circumstances set forth in clauses (i) through (iv) of Section 6.2(b) exist with respect to a Facility system or subsystem submitted for Turnover Acknowledgment it shall so notify Contractor in writing during the two (2) Day period, stating in sufficient detail the deficiencies noticed or the incomplete items of Work, as applicable. When Contractor deems it has remedied such deficiencies or completed such items of Work, as applicable, Contractor shall then again notify Owner's Representative of completion of construction of the system or subsystem as provided in this Section 6.2(c). This procedure shall be repeated until Owner fails to object within two (2) Days after receipt of notice as provided herein, at which time Turnover Acknowledgment shall occur.

6.2(d) Operating Personnel. Owner shall assume the obligation to provide and pay for operating personnel to check-out and operate (provided training to be provided by Contractor has been completed) Facility systems or subsystems that are either proposed for or have received Turnover Acknowledgment, as applicable. All such personnel engaged in check-out operations, maintenance and testing shall be under the direct supervision and control of Contractor. Turnover Acknowledgment by Owner and the provision of operating personnel shall not relieve Contractor of any of its obligations under this Agreement. Nothing contained herein shall prevent Owner from identifying any Defects, deficiencies or incomplete Work as Punch List Items if discovered after Turnover Acknowledgment of any system or subsystem.

6.3 Mechanical Completion. Contractor shall commence the Work upon the Commencement Date and shall exercise its reasonable best efforts to achieve Mechanical Completion on or before June 18, 1999. In the event that achievement of Mechanical Completion by such date shall be in jeopardy in the reasonable judgment of Contractor or Owner, Contractor shall promptly prepare and implement, in good faith, a recovery plan such that the performance of the Work can progress in accordance with the Schedule. In the event that Mechanical Completion is not achieved on or prior to the date specified above, then, Contractor shall use its best efforts to accelerate the Work such that it can be performed in accordance with the Schedule.

6.4 Construction and Performance Tests. At such time as Mechanical Completion has been achieved, Owner and ABB shall be entitled to complete commissioning and conduct the performance tests set forth in Section 3 of Exhibit D. Contractor shall provide all staffing necessary to assist ABB to commission and prepare the Units for performance testing. Owner's personnel will assume operational control (under the supervision and direction of ABB) over the Units during commissioning and during all performance testing. Contractor shall continue to provide construction and other commissioning and testing support until Substantial Completion is achieved. In the event the Facility fails to successfully perform during the performance tests, after a test run, Contractor shall immediately thereafter correct and/or remedy the defects, deficiencies and other conditions in the Work which so prevent such tests from being performed successfully. Contractor shall also provide craft labor and support to ABB as it makes corrections and adjustments and remedies defects, deficiencies and other conditions arising from its performance testing activities. The foregoing procedures shall be repeated until the such tests have been successfully conducted. Contractor shall undertake all of its Work under this Section 6.4 promptly with high regard for the importance of achieving Substantial Completion on or prior to the Guaranteed Substantial Completion Date.

6.5 Substantial Completion. Contractor shall successfully achieve Substantial Completion on or before the Guaranteed Substantial Completion Date.

6.6 Final Completion. Contractor shall successfully achieve Final Completion on or before the Scheduled Final Completion Date.

6.7 Schedule Update. Without altering, revising or otherwise changing the Guaranteed Substantial Completion Date or the Scheduled Final Completion Date, Contractor shall, on a monthly basis, submit an updated hard copy total project integrated schedule, including critical path activities interconnected by schedule logistics, in substantially the format set forth in Exhibit J, to Owner for Owner's review and comment.

ARTICLE 7

LIQUIDATED DAMAGES, INCENTIVES & LIABILITY LIMITATION

7.1 Delay Liquidated Damages and Bonus.

7.1(a) Delay Liquidated Damages. The Parties agree that it would be extremely difficult and impracticable under the presently known and anticipated facts and circumstances to ascertain and fix the actual damages Owner would incur should Contractor delay in achieving Substantial Completion by the Guaranteed Substantial Completion Date. Accordingly the Parties hereby agree that if Contractor fails to so achieve Substantial Completion by the Guaranteed Substantial Completion Date, then Owner's sole and exclusive remedy for such delay shall be to recover from Contractor as liquidated damages, and not as a penalty, the sum of \$50,000 for each calendar day for the first fifteen (15) calendar days of delay and \$100,000 for each calendar day thereafter that Substantial Completion is so delayed by Contractor beyond the Guaranteed Substantial Completion Date; it being acknowledged and agreed by the Parties hereto that the liquidated damages identified in this Section 7.1(a) relate solely to Contractor's delay in achieving Substantial Completion by the Guaranteed Substantial Completion Date, provided however, if Provisional Substantial Completion shall have occurred on or prior to the Guaranteed Substantial Completion Date, then Contractor shall not be liable for the liquidated damages set forth above and in lieu thereof shall be liable for alternate liquidated damages in the amount of one-half of the daily liquidated damages specified above for each calendar day until the Contractor achieves Substantial Completion. Contractor shall not be liable for liquidated damages hereunder if it has performed all of its Work, including coordination, management and oversight of the ABB Scope and Substantial Completion is not achieved because of a breach or failure of ABB to properly perform the ABB Scope.

7.1(b) Bonus. For the first Unit, Owner shall pay a bonus to Contractor in the amount of \$25,000 for each calendar day on or after June 15, 1999 (up to a maximum of forty-six (46) calendar days) by which Provisional Substantial Completion occurs prior to August 1, 1999. For the second Unit, Owner shall also pay to Contractor a bonus in the amount of \$25,000 for each calendar day (up to a maximum of fifteen (15) calendar days) by which Substantial Completion precedes August 1, 1999. Notwithstanding the foregoing, in the event Substantial

Completion is not achieved prior to August 1, 1999, no bonus under this Section 7.1(b) shall be paid to Contractor. For purposes of this Section 7.1(b) only, the August 1, 1999 date set forth in this Section 7.1(b) is not subject to adjustment for any reason whatsoever, including Owner fault, Contractor fault or Excusable Events, and Contractor agrees not to dispute, whether under Article 23 or otherwise, whether a bonus is payable hereunder on account thereof.

7.2 Limit of Liquidated Damages. Notwithstanding anything to the contrary herein, provided Contractor shall have achieved Mechanical Completion, Contractor's cumulative liability for liquidated damages under this Article 7 shall not exceed thirty percent (30%) of the Contract Price. The Liquidated Damages set forth in Article 7 shall be Contractor's sole liability and Owner's exclusive remedy for delays in achieving Substantial Completion.

7.3 Contractor Delays. Contractor acknowledges that it will be necessary for it to cooperate, manage and oversee the performance of the ABB Scope in order to ensure a full, complete and timely performance of all of the obligations of Contractor under this Contract and ABB under the Purchase Order. In the event that Contractor shall fail to perform its obligations hereunder either properly or on a timely basis, Owner may incur increased costs, expenses, and delays on account thereof under the ABB Purchase Order. Pursuant to this section, as Owner's exclusive remedy for delays under the ABB Purchase Order, Contractor shall be liable to Owner for the actual direct storage and handling costs and expenses of ABB Equipment, as well as any additional costs incurred by Owner for extending the time for ABB's technical service representatives on the Site, including TDOC and TDOI support. Contractor shall make necessary adjustments to expedite its Work and accommodate a revised schedule for performance by ABB. In no event shall Contractor be entitled to a Change Order hereunder as a result of such delays or the impact thereof on the Contract Price.

7.4 Work Scheduling. Contractor acknowledges that time is of the essence in this Agreement and that Owner intends to place the Units in commercial operation on or prior to August 1, 1999. Accordingly, upon achievement of Provisional Substantial Completion, Contractor shall be required to complete any and all Work required to achieve Substantial Completion and Final Completion, in a manner consistent with the operational requirements of the Facility and the requirements of ABB in connection with the performance of the ABB Scope. In no event shall Contractor be entitled to require Owner to take the Facility out of service or otherwise adversely affect the Facility's ability to reliably generate power when needed by Operator. Accordingly, Contractor shall schedule and coordinate with Owner any Work required to achieve Final Completion to avoid any adverse impact on the performance of the ABB Scope or Operator's ability to operate the Facility. Notwithstanding anything to the contrary herein, in no event shall Owner be obligated to take the Facility out of service or reduce its output or equivalent availability below that required to meet Operator's needs during Key Periods.

7.5 Payment. The liquidated damages specified in Section 7.1 and the amounts due in respect of Section 7.3 shall be due and payable by Contractor to Owner within seven (7) days of upon demand.

7.6 Consequential Damages. Except to the extent damages expressly provided in this Article 7 may be construed to constitute such damages, in no event shall Owner or Contractor (or

any Subcontractor) be liable for any consequential, special, incidental or indirect damages, sustained by either such Party or any of their respective parents, affiliates or divisions.

7.7 Overall Limitation of Liability. The total cumulative liability of Contractor and any of Contractor's related companies to Owner for all claims, losses, damages, and expenses resulting in any way from the performance of this Agreement shall in no event exceed an amount equal to the Contract Price; provided, however, such limitations of liability shall not apply to, and no credit shall be issued against such limitations for:

- (i) Contractor's indemnity obligations set forth in this Agreement;
- (ii) Claims which arise or result from fraudulent or unlawful acts, gross negligence or willful misconduct of Contractor, its Subcontractors or others for whom the Contractor is responsible; and
- (iii) The proceeds of Builders Risk Insurance and Commercial General Liability Insurance required to be obtained and maintained in accordance with Exhibit W, but only to the minimum limits set forth therein.

7.8 Applicability of Disclaimers. Except to the extent prohibited by law, the waivers and disclaimers of liability, releases from liability, limitations on liability, indemnities, and exclusive remedy provisions set forth in this Agreement shall apply even in the event of the fault, negligence (in whole or in part), strict liability, or other basis of liability of the party to whose benefit such provisions operate.

ARTICLE 8

CONTRACTOR'S COMPENSATION

8.1 Contract Price. Owner shall pay Contractor for the due, proper and complete performance of the Work as required hereunder and for the due performance of all other obligations and duties imposed upon Contractor pursuant to this Agreement the amount of \$19,850,000.00, subject to additions and deductions by Change Order as provided in this Agreement or in accordance with Exhibit E (the "Contract Price").

8.2 Intentionally Omitted.

8.3 Tax Information. Contractor will provide tax information required with respect to the Facility, including Equipment as required by Owner.

8.4 Progress Payments. Owner shall pay Contractor for the Work in monthly installments based on the actual milestones completed during the preceding month by Contractor and agreed to by Owner as more particularly described in Exhibit F. Notwithstanding anything herein to the contrary, in no event shall Contractor be entitled to submit a Payment Request that would exceed the aggregate payment amount specified for such date in Exhibit F.

8.5 Payment Request. On or about the tenth (10th) Day of each calendar month, Contractor shall furnish Owner with a Payment Request for Work completed through the last calendar day of the previous calendar month, accompanied by the substantiating data required by Section 8.5. Each Payment Request shall separately state the charges for incorporated materials and skill and labor. Each Payment Request shall also be accompanied by a partial release and affidavit substantially in the form set forth in Exhibit T from Contractor.

8.6 Payment of Substantiated Amount. Owner shall pay Contractor the amount of each Payment Request which has been substantiated by Owner. Such payment shall be made within thirty (30) Days after receipt of the Payment Request, subject to the provisions of this Article 8. In the event Owner fails to make a payment in respect of a Payment Request when due or improperly withholds amounts due to Contractor, interest shall accrue on such overdue amounts at the Interest Rate from the date such amount was due to have been paid.

8.7 Supporting Documentation. Each invoice submitted by Contractor shall be accompanied by the following, all in form and substance satisfactory to Owner:

- (i) A duly executed and acknowledged Contractor's certification stating all Subcontractors have been paid amounts properly due under their respective subcontracts and identifying all Major Subcontractors with whom Contractor has entered into subcontracts.
- (ii) Duly executed partial and final waivers of mechanics' and materialmen's liens in the form set forth in Exhibit T from all Major Subcontractors who were paid since the last progress payment acknowledging receipt of such payment. The final Payment Request shall be accompanied by final and full waivers of lien from all parties entitled to receive payment in connection with the performance of the Work; and
- (iii) Such other information, documents or other materials (a) reasonably required by Owner, (b) as may be required by the laws or customs of the jurisdiction in which the Facility is located in order to protect Owner from mechanics' or similar liens or claims or (c) as set forth in Exhibit G.

8.8 Payments Withheld. Owner may withhold payment on a Payment Request or other invoice or a portion thereof to the extent such payment is disputed by Owner or because of:

- (i) Contractor's failure to carry out the Work in accordance with this Agreement or any other material breach of this Agreement;
- (ii) other amounts due to Owner from Contractor under this Agreement;
- (iii) the existence of defective, deficient or nonconforming Work not yet corrected by Contractor whether or not payment for such Work pursuant to Section 8.6 has been previously made. Contractor shall be entitled to invoice Owner for such amounts withheld in the next regular Payment Request made after completion of such Work; or

- (iv) liens have been filed by any Subcontractor who has performed a portion of the Work unless Contractor has furnished a bond to protect Owner against such lien.

8.9 Final Payment.

8.9(a) Reconciliation. Upon Final Completion, Contractor shall submit a statement summarizing and reconciling all previous invoices, payments, Change Orders and the Retainage. Subject to the provisions of this Agreement, within thirty (30) Days of the receipt of such statement, Owner shall pay Contractor all remaining amounts due. The making of final payment and the verification by Owner during such thirty (30) Day period that Final Completion has occurred shall constitute a waiver of all claims against Owner not previously made in writing by Contractor, except that nothing herein shall be construed to imply a waiver of any right to any amount which is the subject of a written protest at the time final payment is made. Notwithstanding anything to the contrary contained herein, the final payment shall not become due and payable until (i) Owner has received all warranties, Station Manuals, schematics, Design Documents, performance testing data, Record Drawings and such other items as are required by this Agreement, (ii) [all certificates of occupancy, or other approvals, required of Contractor have been submitted to Owner,] and (iii) the conditions of Section 8.9(b) and (c) have been properly completed. The final payment shall be made by Owner to Contractor within forty-five (45) Days after the date that all of the preceding matters have been completed or have otherwise occurred.

8.9(b) Lien Release. As a condition of final payment and surrender of the letter of credit, Contractor shall submit to Owner a general release and an affidavit, in form and substance satisfactory to Owner, that all indebtedness connected with the Work for which Owner or its property might in any way be responsible has been paid, waived or otherwise satisfied; but in the event any such indebtedness has not been satisfied, Contractor may satisfy this obligation if it furnishes a bond reasonably satisfactory to Owner to indemnify Owner against any such outstanding item of responsibility or obligation. If any claim of any kind or nature whatsoever is filed against the Work and such Lien arises from or is alleged to arise from any failure of Contractor to pay the indebtedness connected with the Work, Contractor shall indemnify, defend and hold Owner harmless for amounts that Owner must pay, in discharging such Lien, including all costs, reasonable attorneys' fees, charges and interest. This provision shall survive any expiration or termination of this Agreement.

8.9(c) Satisfaction of Obligation. Notwithstanding any provision to the contrary set forth in this Agreement, Owner and Contractor acknowledge and agree that Contractor shall not be entitled to final payment of the Contract Price, or the return of the Retainage unless and until Contractor has satisfied all of its obligations hereunder, including payment of any liquidated damages required to be paid by Contractor under this Agreement.

8.10 Disputed Invoices. If there is any dispute about any amount which is invoiced by Contractor or which is claimed by Owner to be due and payable by Contractor, the amount not in dispute shall be promptly paid in accordance with the provisions hereof, and any deduction of a disputed amount which is not specifically agreed to by Contractor or Owner, as applicable, and which is then determined by arbitration or by mutual agreement, to have been improperly withheld

shall be promptly paid by Owner or Contractor, as applicable, together with interest from the date such amount otherwise would have been payable to the date of payment at the Interest Rate.

8.11 Payment of Subcontractors. Contractor shall promptly pay each Subcontractor the amount to which such Subcontractor is entitled. Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to its sub-subcontractors in a similar manner. Owner shall have no obligation to pay or to see the payment of any monies to any Subcontractor except as may otherwise be required by law.

8.12 Retainage and Withholding. As security for the performance of the Work and the other obligations of Contractor under this Agreement, Owner shall be entitled to retain from payment due to Contractor ten percent (10%) of each said payment. In lieu thereof, Contractor may deliver to Owner an irrevocable, unconditional letter of credit in form and substance acceptable to Owner naming Owner and/or designees of Owner as beneficiaries. Any such cash retainage or Letter of Credit shall be held by Owner until thirty (30) Days following the Final Completion Date. The Letter of Credit shall at all times have a Stated Amount equal to ten percent (10%) of the aggregate amount paid to Contractor by Owner. Such letter of credit shall be issued by a bank having a credit rating acceptable to Owner. The stated expiration date of such letter of credit shall initially be thirty (30) Days following the Scheduled Final Completion Date. Such letter of credit shall be maintained by Contractor until thirty (30) days following achievement of Final Completion. In the event Contractor fails to maintain the letter of credit in the proper amount, Owner shall be entitled to hold Contractor's payments pursuant to the terms of this Agreement in an amount not to exceed ten percent (10%) of the Contract Price.

Owner shall be entitled to draw on such letter of credit (or any letter of credit which has been extended or replaced in lieu thereof) during the fifteen (15) Day period prior to the stated expiration date of such letter of credit (and hold the proceeds thereof in an escrow account as equivalent security) if such letter of credit has not been extended or otherwise replaced prior to such fifteen (15) Day period with a comparable letter of credit for an additional term of at least six (6) months. Contractor shall notify Owner in writing of any changes in the amount of the letter of credit because of changes in the Contract Price.

8.13 Release of Retainage. Upon achievement of Final Completion, Contractor shall be entitled to give notice to Owner requesting the return of the Retainage for cancellation. Within ten (10) Days following Contractor's request, Owner shall approve or disapprove such request, in accordance with this Agreement. Upon approval, the Retainage shall be returned to Contractor, provided Contractor is not then in material default hereunder.

8.14 System of Accounts. For accounting purposes only, Contractor shall furnish Owner a cost breakdown of the Contract Price in accordance with the system of accounts established by Owner which has been designed in conformance with the uniform system of accounts prescribed by the Federal Energy Regulatory Commission and in accordance with Kentucky Public Service Commission regulations. The sum of the items listed in Contractor's price breakdown shall equal the Contract Price. Overhead and profit shall not be listed as separate items.

ARTICLE 9

EXCUSABLE EVENTS

9.1 Notice. Contractor shall not be held in default or be liable for delay or failure in performing its obligations hereunder to the extent caused by an Excusable Event. Contractor shall give notice to Owner not more than five (5) Days after the occurrence of such Excusable Event. Such notice shall, to the extent practicable, specify the nature of the occurrence and the reasons why Contractor believes additional time, additional compensation or other adjustment to this Agreement should be granted, the length of the delay occasioned by, and the additional costs incurred (which shall be based and presented in accordance with Section 10.1(b) by reason of such Excusable Event. Compliance with this Article 9 is a condition precedent to the establishment of an Excusable Event itself, receipt of an increase in the Contract Price, an extension of the Guaranteed Substantial Completion Date or the Scheduled Final Completion Date or other adjustment to this Agreement. Failure by Contractor to give the required notice hereunder shall preclude Contractor's right to invoke the protection of this Article. Contractor shall use reasonable efforts to minimize or avoid the delay and cost caused by an Excusable Event and the initial notice provided by the Contractor shall describe in detail the efforts of Contractor that have been or are going to be made to overcome or remove the Excusable Event and to minimize the potential adverse impact on the cost of performance resulting from such Excusable Event. If an Excusable Event occurs, the Contract Price and the Schedule, or other applicable provision of this Agreement shall be appropriately adjusted in accordance with Article 10.

9.2 Rights Limited. The rights and remedies set forth in this Article 9 shall be Contractor's sole and exclusive rights and remedies in the event of an occurrence of an Excusable Event, and Contractor hereby waives all other rights and remedies at law and/or in equity that it might otherwise have against Owner on account of an Excusable Event.

ARTICLE 10

CONTRACT CHANGES

10.1 Owner-Initiated Changes.

10.1(a) Request For Modifications Proposals. Owner may, from time to time, without invalidating this Agreement, order changes in the Work consistent with the general purposes of this Agreement, and/or changes in the time for or sequence of completion of all or any portion of the Work ("Changes"), by notification in writing to Contractor (such notice, which shall be substantially in the form of Exhibit U hereto, a "Request For Modifications Proposal"), and the Contract Price, Schedule or other applicable provision of this Agreement shall be adjusted accordingly in a Change Order. Each Request For Modifications Proposal shall be accompanied by a description of the Changes requested, together with a conceptual design thereof (where appropriate); provided that Owner may request Contractor to prepare such conceptual design materials.

10.1(b) Estimates: Contractor's Response. Contractor shall, within fifteen (15) Days after receipt of a Request For Modifications Proposal (unless such time period is extended by mutual agreement of Contractor and Owner or as otherwise herein provided), provide Owner for its review and approval a completed Request For Modification Proposal indicating any adjustment to the Contract Price and Schedule or any other effect on the Work resulting from the Changes set forth in the Request For Modifications Proposal, together with an itemization of the categories set forth below, which shall include (i) as part of Section 10.1(b)(i) and (ii) estimates of total job-hours (home office and construction) (ii) as part of Section 10.1(b)(iii) and (iv), estimated quantities and qualities (as required) of materials and supplies and estimated costs of Equipment, both as applicable to such Changes, and (iii) any bids received from any Subcontractors actually contacted by Contractor in connection with such Changes (collectively, the "Estimates"). The Contractor's response shall be prepared in accordance with the following criteria:

- (i) salaries for direct and indirect field employees, wages, premiums for overtime payable to all field employees and agency personnel of Contractor as set forth in Exhibit M, and other Site costs (except overhead and benefits) associated with field personnel engaged in the performance of any Work covered by the Request For Modifications Proposal;
- (ii) direct salaries, wages, premiums (overtime) payable to all home office employees and agency personnel of Contractor to the extent engaged in the performance of such Work whether working in the home office or on temporary assignment as a result of the Change Order as set forth in Exhibit M, and other home office costs (except overhead and benefits) associated with the performance of any Work covered by the Request For Modifications Proposal;
- (iii) direct costs of Equipment and materials to be purchased by Contractor or any Subcontractor for incorporation into the changed Work and transportation of the same to the Site;
- (iv) all other direct costs associated with the performance of the Work, including travel and living, reproductions, printing, consultants, Subcontractors, etc.;
- (v) direct cost of Contractor-owned equipment at Contractor's usual and customary rates; and
- (vi) applicable contingencies for the foregoing cost items appropriate for the degree of uncertainty in the estimate;

Contractor shall, at Owner's option, quote the increase or decrease on a fixed-price, time and materials (using agreed upon unit prices) or other reasonable basis. Any contingencies contained in Contractor's response and approved by Owner and Contractor in a Change Order as part of the approved increase or decrease in the Contract Price resulting from any Changes shall be to the

account of Contractor, whether or not such amounts are unused or overspent by Contractor in performing the changed Work.

10.1(c) Owner Response. Owner shall, within fifteen (15) Days after receipt of Contractor's response (unless such time period is extended by mutual agreement of Contractor and Owner) (the "Owner Response Period"), (i) notify Contractor as to whether it agrees or disagrees with such Contractor's response, and of Owner's position regarding the effect of the Changes and the Request For Modifications Proposal on the Contract Price, Schedule, or other applicable provision of this Agreement and (ii) embody the agreed upon changes in the Work, the Contract Price or the Schedule in a document to be executed by the Parties (a "Change Order"). During the Owner Response Period, Owner's Representative and the Contractor's Representative shall make themselves available and shall use reasonable efforts to meet or otherwise confer to discuss the Request For Modifications Proposal, the Contractor's response and the Estimates, and to answer any questions or clarify any information provided with respect thereto, and Owner and Owner's Representative may request the Contractor's Representative to provide further information and data to the extent Contractor has failed to provide such information and data required to be provided or if there are errors or mistakes in any information or data previously provided as part of the Estimates. If Contractor fails to provide data or information required to be provided as part of Contractor's response and to correct any errors or mistakes in such information or data which prevents Owner from properly analyzing such data or information, Owner Response Period shall be extended by that period of time commencing on the date Contractor receives notice of such failure, error or mistake and ending on the date the correct data and information is sent to Owner.

10.1(d) Owner Authorization. Contractor shall not be required to perform any Changes until a Change Order has been issued therefor or Owner has expressly authorized or directed Contractor in writing to perform any Changes prior to such approval, which it shall be entitled to do; provided, that if Owner so authorizes or directs Contractor to proceed with any of the Changes set forth in a Request For Modifications Proposal prior to issuing a Change Order therefor or otherwise approves Contractor's requested change to the Contract Price, Schedule or other applicable provision of this Agreement based thereon (the "Owner Authorization"), Owner shall, as part of such Owner Authorization, (i) acknowledge in writing to Contractor that it will issue a Change Order therefor, upon agreement on the effect of the Changes and the Request For Modifications Proposal on the Contract Price and Schedule, (ii) agree to pay Contractor in accordance with the invoicing procedures contained herein any undisputed portion of Contractor's proposed change in the Contract Price resulting from such Changes and (iii) pay interest at the Interest Rate to Contractor (commencing as of the date of Owner Authorization) on any disputed portion of a proposed change in the Contract Price resulting from such Changes which are determined to be payable to Contractor. Upon receiving such Change Order or such Owner Authorization, Contractor shall perform the approved or authorized Changes in accordance with and subject to all of the terms of this Agreement. Contractor shall not suspend, in whole or in part, performance of the Work during any dispute over any Changes set forth in the Request For Modifications Proposal or during the review and negotiation of any Change Order based thereon (or any adjustment to the Contract Price or Schedule to be set forth therein) unless directed to do so by Owner. If directed pursuant to an Owner Authorization issued in accordance with the provisions hereof to proceed with a Change or a disputed item pending review and

agreement upon such Change Order or adjustments, Contractor shall (without waiving any rights or remedies with respect to such Change, disputed item or adjustment) do so.

10.2 Contractor Request for Modification Proposal. If Contractor wishes to make a claim for an increase in the Contract Price, an extension of the Schedule or other applicable provision under this Agreement (whether due to an Excusable Event or any other reason for which Contractor may make a claim under this Agreement), Contractor shall promptly give notice in accordance with the procedures set forth in Article 9. Such claim shall be made as a Request for Modification Proposal and must be provided to Owner before proceeding to execute any additional Work, except in an emergency endangering life or property in which case Contractor shall act, at its discretion, to prevent threatened damage, injury or loss. Within a reasonable period of time following the giving of any Request for Modification Proposal made by Contractor, Contractor may supplement such notice with information that could not have been determined or provided in the time period required by Article 9. Owner shall respond to all Contractor initiated Requests for Modification Proposals within fifteen (15) Days after receipt thereof ("Owner Response Date"), setting forth Owner's position regarding Contractor's statement, issuing a Change Order or Owner Authorization based thereon.

10.3 Minor Changes in the Work. Owner and Contractor may mutually agree in writing to make minor changes in the Work not involving an adjustment in the Contract Price, or the Schedule.

10.4 Emergencies. Any claim for a change claimed by Contractor on account of emergency work shall be determined by the Parties by mutual consent and based upon the facts of each such incident.

10.5 Arbitration. In the event of a failure to agree to any adjustment in the Contract Price or Schedule as the result of a Change Order Request or a Contractor Request for Modification Proposal, either Party may demand arbitration of such issues in accordance with Article 23 hereof.

10.6 Contractor Caused Delays. To the extent the delay or suspension is caused by Contractor or any of its Subcontractors, no adjustment will be made to the Contract Price or Schedule.

ARTICLE 11

TEST AND INSPECTIONS

11.1 Testing. Contractor shall conduct, arrange or obtain (at its sole expense) all inspections, and construction and equipment tests, reasonably requested by Owner, customarily performed on similar projects or which are necessary for the proper execution and completion of the Work in accordance with Professional Standards.

11.2 Witnessing Tests and Inspection. Owner and Operator and their respective employees, agents, representatives and other designees reasonably approved by Contractor shall

be entitled to witness the performance of any testing or inspection conducted by Contractor and its Subcontractors. In addition, the Parties acknowledge and agree that they will work together to establish a mutually acceptable procedure which will permit Owner and Operator to inspect or witness the conduct of any factory or off-site performance tests, with respect to materials and Equipment to be incorporated into the Facility. Owner's inability to attend such Equipment or materials, tests or inspections shall not be cause for their being rescheduled, provided that Owner shall have been given reasonable advance written notice thereof. Contractor shall forward to Owner copies of all test results together with such other information either of them reasonably requires in relation to any inspection or test.

11.3 Failure to Comply. If any tests or inspections reveal failure of the portions of the Work to comply with requirements established by this Agreement, Contractor shall bear all costs and expenses necessary to correct such Work.

11.4 Additional Tests. Owner, at its expense, may require Contractor to carry out tests in connection with the Work in addition to those provided for elsewhere in this Agreement. If any additional test is required by Owner, Contractor shall as soon as practicable cause such test to be carried out and shall provide Owner with full details of the results or, if required by Owner, shall afford Owner facilities to have the additional test carried out by some Person other than Contractor.

ARTICLE 12

CORRECTION OF WORK

12.1 Correction of Work. Prior to the Substantial Completion Date, Contractor shall, at the earliest practical opportunity, correct Work which contains a Defect. If other portions of the Work are adversely affected by or are damaged by such defective Work, Contractor shall, at its sole cost and expense and at the earliest practical opportunity, correct, repair or replace such affected or damaged Work. Contractor shall bear all costs of correcting such defective or nonconforming Work, including additional testing and inspections and compensation for any design or engineering services and expenses made necessary thereby.

12.2 Urgent Repairs. If by reason of any accident or failure or event occurring to, in, or in connection with the Work or any part thereof either during the execution of the Work or during the Warranty Period or Extended Warranty Period, any remedial or other work or repair is in the opinion of Owner urgently necessary and Contractor is unable or unwilling at once to do such work or repair, Owner may, by his own or other workmen, do such work or repair as considered necessary. If the work or repair so done by Owner is work which Contractor was liable to do at his own expense under the Contract, all Costs less any insurance proceeds due and paid as a result of such event incurred by Owner in so doing shall be paid by Contractor to Owner on demand. Owner shall as soon after the occurrence of any such emergency as may be reasonably practicable notify Contractor thereof in writing.

ARTICLE 13

WARRANTY

13.1 Work Warranty. Contractor warrants that it shall perform the Work as a prudent contractor consistent with Professional Standards on projects similar to the Facility; and without limiting the generality of the foregoing that the Work, including the Equipment and materials, will (i) be free from errors, defects, or damage in design, material and workmanship; (ii) be new unless otherwise agreed to by the Parties in writing; (iii) be of good quality and good condition; (iv) be designed using consistent design parameters as were used in the currently existing combustion turbine units in the E. W. Brown Generating Facility; (v) be delivered, handled, stored (whether on-site or off-site) and installed in accordance with manufacturer's reasonable instructions; and (vi) conform to the requirements of this Agreement. Any computer Equipment, product, application, system or computer program provided as part of the Work will be Year 2000 compliant. All Equipment, including ABB Equipment, shall be installed in a manner that does not void manufacturer warranties. If, within a period of one (1) year following the Substantial Completion Date (the "Warranty Period") deviations from the above-described requirements ("Defect(s)") in the Work are found, Contractor shall, at its option and expense, correct, repair, modify, or replace such Defect, including, repair, disassembly, removal, transportation, reassembly or reperformance of any affected portion of the Work, immediately upon being given notice thereof and shall demonstrate that such defect has been properly corrected, provided, however, that the Warranty Period shall be deemed to commence on September 1, 1999, if the delay in achieving Substantial Completion is caused by the acts or omissions of ABB. The warranty period with respect to the correction of any Work found to contain such Defect shall extend for a period of one (1) year from the completion of such correction (the "Extended Warranty Period") but in no event more than 2.5 years (30 months) beyond the date of the commencement of the original Warranty Period.

13.2 Breach of Warranty. If, at any time prior to the expiration of the applicable warranty period set forth in Section 13.1, Owner shall discover any failure or breach of Contractor's warranties, Contractor shall, upon written notice from Owner and at Contractor's sole cost and expense, immediately correct the Defect. Contractor shall use its best efforts to remedy any such failure or breach so as to minimize revenue loss to Owner and to avoid disruption of Owner's operations at the Site. In the event Contractor fails to initiate and diligently take steps to pursue corrective action within five (5) calendar days of Contractor's receipt of Owner's notice and continuously pursue such correction thereafter, Owner may undertake or arrange such corrective action at Contractor's expense. The correction of a Defect by Owner pursuant to the previous sentence shall not limit or void Contractor's warranty, provided the correction of such Defect by Owner is in accordance with Contractor's reasonable recommendations or, in the absence thereof, Professional Standards. In no event shall Contractor have any obligation to remedy the Work if Owner fails to provide notice prior to the expiration of the Warranty Period or the Extended Warranty Period, as applicable.

13.3 Subcontractor Warranties. Contractor shall use reasonable efforts to obtain warranties for the benefit of Contractor and Owner from material and Equipment suppliers, vendors, Subcontractors in relation to their respective portions of the Work. Contractor shall

similarly use its best efforts to obtain warranties from such lower tier entities which (i) are consistent with Contractor's warranty to Owner, and (ii) warrant against defects and deficiencies in each such entities' work. Copies of all warranties and guarantees obtained by Contractor shall be promptly provided to Owner. Such warranties shall be contracted to survive Owner and Contractor tests, inspections and approvals and shall be assignable to Owner. On or after the final term of the applicable warranty period hereunder, at the request of Owner, Contractor shall assign to Owner any Subcontractor warranty for Work or Equipment provided hereunder the term of which has not expired. Upon assignment any such warranty shall be in full force and effect in accordance with its terms.

13.4 Primary Liability. Contractor shall have primary liability with respect to the warranties set forth in this Agreement, whether or not any Defect or other matter is also covered by a warranty of a Subcontractor or other third party, and Owner need only look to Contractor for corrective action. In addition thereto, Contractor's warranties expressed herein shall not be restricted in any manner by any warranty of a Subcontractor or other third party, and the refusal of a Subcontractor or other third party to provide a warranty or correct defective, deficient or nonconforming Work shall not excuse Contractor from its liability as to the warranties provided herein.

13.5 Title Warranty. Contractor warrants that the Work for which Owner has made payment (excluding Retainage and any other amounts withheld by Owner in accordance with the terms of this Agreement) shall not be subject to any encumbrance, lien, security interest or other defect in title. In the event of any nonconformity with this warranty, Contractor, at its own expense, upon written notice of such failure, shall indemnify Owner from the consequences of and defend the title to such Work and, if necessary, shall promptly replace such Work and any other affected portion of the Work, and such obligation shall survive the expiration, cancellation or termination of the Work.

13.6 Defect Limitations. For purposes of this Article 13, normal wear and tear, damage caused by Owner's failure to operate or maintain the affected Work in accordance with the Station Manuals or misuse or abuse shall not constitute a Defect hereunder.

13.7 Warranty Assistance. At the request of Contractor, Owner shall furnish, to the extent available, at Contractor's expense, personnel and facilities to assist Contractor in any repairs, modifications, or replacements pursuant to its warranty obligations.

13.8 Reasonable Access. Owner shall provide Contractor representatives reasonable access to the Facility for the purpose of observing the operation and maintenance thereof upon reasonable notice during times mutually agreed by Owner and Contractor. Contractor acknowledges that warranty Work, at the request of Owner, must be coordinated with the ongoing operations of the Facility to assure, among other things, that Owner will be able to fulfill its obligations under the Facility Agreements.

13.9 Exclusivity of Warranties and Remedies. THE WARRANTIES PROVIDED IN THIS ARTICLE 13 ARE EXCLUSIVE AND NO OTHER WARRANTIES OF ANY KIND, WHETHER STATUTORY, EXPRESS, OR IMPLIED (INCLUDING ALL WARRANTIES OF

MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) SHALL APPLY. THE REMEDIES SET FORTH IN THIS ARTICLE ARE THE EXCLUSIVE REMEDIES OF OWNER FOR ANY FAILURE BY CONTRACTOR TO COMPLY WITH ITS WARRANTY OBLIGATIONS SET FORTH IN THIS ARTICLE.

ARTICLE 14

PROTECTION OF PERSONS AND PROPERTY

14.1 Safety Programs. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of this Agreement, including appropriate precautions and programs for areas in and around the Site. Contractor shall also comply, and shall cause all Subcontractors to comply, with those rules, regulations and procedures set forth in Exhibit S.

14.2 Applicable Laws. Contractor shall give notices and comply with Applicable Laws, bearing on the safety of persons or property or their protection from damage, injury or loss, including the Federal Occupational Safety and Health Act and the Americans With Disabilities Act.

14.3 Safety Precautions. Contractor shall take all reasonable precautions for safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

- (i) employees and Subcontractors or other persons performing the Work and all other persons who may be affected thereby;
- (ii) the Work and materials and Equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody or control of Contractor or Subcontractors;
- (iii) other property at the Site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities; and
- (iv) the general public.

14.4 Safeguards. Contractor shall erect, maintain or undertake, as required by existing conditions and the performance of this Agreement, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent Sites and utilities.

14.5 Dangerous Materials. When use or storage of explosives or other dangerous materials or equipment or unusual methods are necessary for execution of the Work, Contractor shall exercise utmost care and carry on such activities only under the supervision of properly qualified personnel.

14.6 Safety Personnel. Contractor shall designate a responsible, qualified full-time member of Contractor's organization at the Site whose duty shall be the prevention of accidents.

14.7 Loading. Contractor shall not load or permit any part of the construction or Site to be loaded so as to endanger the safety of persons or property.

14.8 Notices to Owner. Contractor shall promptly report in writing to Owner all accidents arising out of or in connection with the Work which cause death, bodily injury or property damage, giving full details and statements of any witnesses. In addition, if death or serious bodily injuries or substantial damages are caused, the accident shall be reported immediately by telephone or messenger to Owner.

14.9 Emergencies. In an emergency affecting safety of persons or property, Contractor shall act, at Contractor's discretion, to prevent threatened damages, injury or loss.

14.10 Contractor Safety Obligations. Neither the foregoing provisions related to safety nor the enforcement of such provisions is intended to create any duty on the part of Owner to review and enforce Contractor safety, rather, the obligation for Contractor safety, and the safe performance of the Work rests entirely upon Contractor, its Subcontractors and their employees. Further, the foregoing provisions regarding safety are not for the benefit of any third party.

ARTICLE 15

SEPARATE CONTRACTORS AND ACTIVITIES BY OWNER

15.1 Separate Work. Owner reserves the right to perform construction or operations related to the Facility or any other construction or other work at the Site with Owner's own forces or to award separate contracts in connection with other portions of the Facility or other construction or operations at the Site.

15.2 Integration. Contractor shall use reasonable best efforts to arrange the performance of the Work so that (i) the Work and the work of any separate contractors, including ABB and Operator, are properly integrated, joined in an acceptable manner and performed in the proper sequence, and (ii) any disruption or damage to the Work, the work or business operations of Operator or any work of the separate contractors or Operator is minimized.

15.3 Coordination. Contractor shall provide for coordination of the activities of Contractor's, and its Subcontractors' forces with the activities of each separate contractor, Operator, ABB and Owner, as applicable.

15.4 Use of Site. Contractor shall afford Owner and all separate contractors reasonable opportunity for storage of their materials and equipment, and for performance of their work. Owner shall direct its separate contractors to cooperate with Contractor and to avoid actions which could unreasonably interfere with the activities of Contractor.

15.5 Deficiency in Work of Owner and Separate Contractors. If part of Contractor's Work depends for proper execution or results upon construction or operations by Owner or a separate contractor, Contractor shall, prior to proceeding with that portion of the Work, promptly report to Owner apparent discrepancies or defects in such other construction or operations that would render it unsuitable for proper execution and results by Contractor. The Parties shall resolve in good faith any such discrepancies or defects or any disagreements relating thereto, and Owner shall cause the separate contractor to correct its defects and deficiencies. Failure of Contractor so to report apparent discrepancies or defects of which it has or upon reasonable investigation should have had knowledge shall constitute an acknowledgment by Contractor to Owner that Owner's or separate contractor's completed or partially completed construction or operations are fit and proper to receive Contractor's Work, except as to discrepancies and defects not then reasonably discoverable.

ARTICLE 16

INTELLECTUAL PROPERTY

16.1 Definitions. "Design Information" means all drawings; documents; manuals; training materials; operating, maintenance, and other guidelines and procedures; and design, engineering data, and information used or supplied by Contractor, whether directly itself or indirectly through subcontractors, in performance of this Contract which would be reasonably useful or necessary in Owner's operation, maintenance, repair, modification, or use of the Facility. "Intellectual Property Rights" mean all United States patents, copyrights, trade secrets and other intellectual property rights directly or indirectly related to the Design Information.

16.2 Ownership/License. (i) Subject to the grant of Contractor of the license rights hereunder, Contractor hereby assigns and transfers to Owner all of Contractor's right, title, and interest in the Design Information and the Intellectual Property Rights. Contractor shall (and shall cause all applicable third parties to) perform such acts and execute such documents, at Owner's expense, as Owner reasonably requests to confirm or perfect Owner's ownership rights in the Design Information and the Intellectual Property Rights. Owner shall have the right to retain and use copies of the Design Documents and the Intellectual Property Rights and shall retain the ownership thereof. (ii) Owner hereby grants to Contractor an irrevocable, permanent, transferable, nonexclusive, royalty-free license to use, solely in connection with operation, maintenance, repair, modification or alteration of the Facility or any unit or component thereof, all Design Information and Intellectual Property Rights. Owner shall have the right to retain, copy, execute, modify, create derivative works of, and use copies of the Design Information and the Intellectual Property Rights and the information contained therein for any purpose with respect to the Facility and as otherwise provided in this Contract. (iii) Owner hereby grants Contractor a nonexclusive license to use any proprietary information received from Owner for the sole purpose of performing the Work. (iv) Contractor hereby grants to Owner a nonexclusive, irrevocable, permanent, transferable, and royalty-free license to use Computer Programs, trade secrets and the like in conjunction with the Project.

16.3 Indemnify Against Intellectual Property Infringement. Contractor warrants that all Intellectual Property Rights which may exist in the Design Information are now (or shall at their creation be) vested in Contractor (and/or that Contractor shall then be able to transfer to Owner the ownership rights referred to in Section 16.2). Contractor shall defend, indemnify and hold harmless Owner against all loss, damage and expense (including reasonable lawyers' fees and court costs) arising from any claim or legal action for infringement of any Intellectual Property Right that either (i) concerns any Design Information as furnished to Owner hereunder or as used by Contractor hereunder; (ii) is based upon or arises out of the performance of the Work by Contractor or any Subcontractor; (iii) is based upon or arises out of the design or construction and use of any item or unit under this Contract; or (iv) is based upon or arises out of Contractor's use (including, the creation of derivative works thereof) of the Design Information and the Intellectual Property Rights pursuant to the license granted under Section 16.2 hereof. Owner shall provide Contractor with reasonably prompt Notice of any claim or legal action for infringement.

16.4 Contractor's Responsibility for Litigation. If such claim or legal action for such infringement results in a claim, action, suit, or order against Owner, Contractor shall, at its election and in the absence of waiver of this indemnify by Owner, have sole charge and direction thereof in Owner's behalf so long as Contractor diligently defends such matter; provided, however, that no settlement to any such action shall be agreed to by Contractor without the consent of Owner (such consent not to be unreasonably withheld).

16.5 Assistance by Owner. If Contractor has charge of any suit brought against Owner, Owner shall render such assistance as Contractor may reasonably require in the defense of such suit except Owner shall have the right to be represented therein by counsel of its own choice and at its own expense. Any expenses arising from such assistance provided by Owner or additional defense (but excluding costs of Owner's counsel unless separate counsel is necessary because of the existence of a conflict of interest between Owner and Contractor) shall be paid by Contractor.

16.6 Injunction. If Owner is enjoined from completing the Facility or any part thereof or from the use, operation, continued maintenance, alteration, or enjoyment of the Facility or any part thereof or any permitted use of the Design Information or Intellectual Property Rights as a result of such claim or legal action or any litigation based thereon, Contractor shall exercise its reasonable best efforts to have such injunction removed at no cost to Owner.

16.7 Contractor's Continuing Obligation. Owner's acceptance of the assignment to Intellectual Property Rights in Section 16.2 and of Contractor's proposed engineering, design and/or supplied materials and equipment shall not be construed to relieve Contractor of any obligation hereunder.

16.8 Limitations and Conditions. In the event of any claim or legal action for infringement, Contractor shall have the right, at its option and at its expense, to either promptly procure for Owner the rights alleged to have been infringed or to promptly modify the infringing item in a way satisfactory to Owner, in the reasonable exercise of its judgment, so that it becomes non-infringing or falls within the scope of authorized use. Contractor shall also assign and transfer all of its ownership rights in Design Information and Intellectual Property Rights, or

arising out of, such modification to Owner. Furthermore, if such claim or legal action for infringement threatens to affect the continued operation of the Facility in Owner's reasonable judgment, Contractor shall promptly undertake the obligations set forth in the previous sentence. Contractor shall have no liability as described in this Article 16 for any design, equipment, or process that Contractor is directed by Owner after the Commencement Date to incorporate in the Facility, provided Contractor notifies Owner within twenty (20) days of receipt of Owner's direction that such direction might jeopardize Owner's infringement protections, providing reasonable details in support of Contractor's concerns. Contractor shall obtain, at no additional cost to Owner, an indemnity from each Subcontractor in favor of Owner regarding infringement of Intellectual Property Rights. The indemnification and other provisions of this Article 16 shall apply to any infringements that occur during the use of the Facility and shall survive the termination or expiration of this Agreement until the expiration of the applicable statute of limitations therefor.

ARTICLE 17

REPRESENTATIONS AND WARRANTIES

17.1 Contractor. Contractor hereby represents and warrants the following to Owner, which representations and warranties shall survive the execution and delivery of this Agreement, any termination of this Agreement and the final completion of the Work:

- (i) that Contractor is able to furnish the tools, materials, supplies, Equipment, labor, supervision and design, engineering and construction services required to complete the Work and perform its obligations hereunder, and has sufficient experience and competence to do so;
- (ii) that Contractor is a corporation duly organized, validly existing and in good standing under the laws of the State of Delaware, and is duly qualified to do business in the Commonwealth of Kentucky;
- (iii) that Contractor is authorized to do business in the Commonwealth of Kentucky and properly licensed by all necessary governmental and quasi-governmental authorities having jurisdiction over Contractor, the Work and/or the Facility; and
- (iv) that Contractor has visited the Site, familiarized itself with the local conditions under which the Work is to be performed and correlated its observations with the requirements of this Agreement.
- (v) that this Agreement has been duly authorized, executed and delivered by Contractor and constitutes the legal, valid and binding agreement of Contractor.

17.2 Owner. Owner hereby represents and warrants the following to Contractor, which representations and warranties shall survive the execution and delivery of this Agreement, and any termination of this Agreement and the final completion of the Work:

- (i) that Owner is a corporation duly organized, validly existing under the laws of the Commonwealth of Kentucky and is duly qualified to do business in the Commonwealth of Kentucky; and
- (ii) that Owner, if it issues the Notice to Proceed, will have the financial resources to make the payments due Contractor hereunder and will be able to perform its obligations hereunder.
- (iii) that this Agreement has been duly authorized, executed and delivered by and on behalf of each Owner constitutes the legal, valid and binding agreement of Owner.

ARTICLE 18

PROPRIETARY INFORMATION

18.1 Owner and Contractor Proprietary Information. The Parties have a proprietary interest in information that will be furnished pursuant to this Agreement. The Parties shall keep in confidence and will not disclose any such information which in good faith is proprietary ("Confidential Information") without the prior written permission of the disclosing Party or use any such information for other than the purpose for which it is supplied, except as provided herein. Each Party agrees that the other Party may disclose any Confidential Information to its consultants and representatives and to such other persons or entities, including potential investors, as may be necessary to perform its obligations under this Agreement or any document related to the Facility to which it is a Party subject to a confidentiality agreement in form and substance agreed upon by the Parties and signed by any such consultant, representative, person or entity. Each Party agrees with respect to Confidential Information, to hold the same confidential for the shorter of a period of five (5) years from receipt or for a period of two (2) years from the Final Completion Date. The provisions of this Article 18 shall not apply to information which the receiving Party can substantiate:

- (i) was in the possession of the receiving Party at the time it was initially furnished, without a breach of this provision, or
- (ii) is or becomes part of the public domain without breach of this provision, or
- (iii) is received from a third party who is, as far as it reasonably be can determined, under no limitation or restriction regarding disclosure, or
- (iv) information disclosed to counsel for a Party or pursuant to and in conformity with the law, a judicial order or is used in connection with any legal proceeding or Disputes under Article 23 hereof.

Such information shall not be deemed to be within one of the foregoing exceptions if it is merely embraced by more general information available on a non-confidential basis to the receiving Party.

ARTICLE 19

HAZARDOUS SUBSTANCES

19.1 Hazardous Substances.

19.1(a) Encountering Hazardous Substances. If, in the course of performance of the Work, Contractor encounters on the Site any matter which it reasonably believes is a Hazardous Substance, in such quantities and/or at such levels that may require investigation and/or remediation pursuant to any Environmental Laws, Contractor shall immediately suspend the Work in the area affected and immediately report the condition to Owner and Operator in writing. In any such event, the obligations and duties of the parties hereto shall be as follows:

- (i) If such condition involves a Pre-Existing Hazardous Substance, then Contractor shall have no obligation with respect to such condition and Owner and Operator, at its sole discretion, shall respond in the manner which it deems appropriate;
- (ii) If such condition involves a Hazardous Substance brought to the Site after the Effective Date by Contractor, its Subcontractors or any party for whom either may be liable, then any investigation, response, removal, cleanup or other remedial action required by Environmental Law or Governmental Authorities (collectively, "Environmental Action") shall be performed by Contractor at its sole, cost and expense; any Environmental Action, notification and other communication with third parties, including Governmental Authorities, and reports and documentation related to the Environmental Action shall require the prior review and approval of the Owner and Operator except in the case of emergencies; or
- (iii) If the condition does not involve a Pre-Existing Hazardous Substance, in such quantities and/or at such levels that may require investigation and/or remediation pursuant to any Environmental Laws, Contractor shall, promptly after receiving written notice from Owner authorizing Contractor to recommence Site activities in the subject area, resume the portion of the Work that had been suspended and Contractor shall have no liability for such recommencement or for the existence or removal or disposal of such Hazardous Substances.

Contractor shall use diligent efforts to avoid any adverse effect on, or impediment to, the efforts undertaken by Owner and Operator, its agents or independent contractors in connection with any Environmental Action or other remedial work Owner and Operator deems appropriate at the Site during the term of this Agreement. The Parties acknowledge and agree that Contractor shall not

commence or continue any construction activities on any portion of the Site on, in or under which Environmental Actions or other remedial actions are to be (or are being) performed until such actions are to the point where construction activities will not interfere with such actions, as evidenced by appropriate certifications from the applicable environmental engineer and/or remediation contractor and any required approvals of any applicable Governmental Authorities. Contractor agrees to use good faith diligent efforts to continue the unaffected portions of the Work and to adjust and reschedule its activities at the Site so as to minimize, to the extent reasonably practicable, any adverse effect on the cost and progress of the Work resulting from the performance of any remedial actions.

19.1(b) Contractor Obligations. Contractor shall not generate, dispose, transport or store (and shall prohibit Subcontractors from generating, disposing, bringing or storing) Hazardous Substances to or on the Site, and shall not utilize (and shall prohibit Subcontractors from utilizing) any construction materials or equipment (whether or not totally enclosed) containing asbestos, polychlorinated biphenyls or urea formaldehyde; provided, however, that the Contractor (and Subcontractors) may use and store in quantities reasonably necessary to perform the Work the following, but only in accordance with applicable Environmental Laws: gasoline, diesel fuel, fuel oil(s), gravel(s), lube oil(s), sealant(s), form oil(s), solvent(s), adhesives(s), and all other materials, which are consumed in or during construction and/or testing of the Project and its constituent systems and components thereof. Any other substances to be brought to or stored on or at the Site shall require specific prior written authorization from Owner or Operator. Contractor shall be responsible for the removal and cleanup of Hazardous Substances brought to or generated at the Site by Contractor, any Subcontractor or any party for whose actions Contractor or any Subcontractor is responsible pursuant to this Agreement. In this regard, Contractor shall comply, and shall cause its Subcontractors to comply, with all Environmental Laws. Contractor shall have ownership of and title to all contaminated media encountered in performing its obligations under Section 19.1(a)(ii) and this subsection (b) of Section 19.1, and shall have sole responsibility in responding to such conditions including, without limitation, complying with reporting obligations, providing for access restrictions and warnings, manifesting and any other obligations under Environmental Laws.

Except as expressly provided herein, Contractor does not assume any reporting obligation to third parties including Governmental Authorities with respect to environmental conditions existing at the Site as of the Commencement Date under any federal, state or local law, regulation, ordinance, permit or any other legally enforceable requirement by virtue of executing this Agreement. Unless Owner or Operator provides written authorization, Contractor acknowledges and agrees that it shall not report, or cause any other person to report, any information regarding environmental conditions to any federal, state or local government or its governmental agencies; except, as required by Applicable Law. Contractor shall use its best efforts to afford Owner or Operator an opportunity to present all objections and defenses Owner, Operator or Contractor may have prior to the making of such report by Contractor. Contractor retains its obligation to report any conditions created by activities of Contractor or its subcontractors or agents in the course of activities pursuant to this Agreement. Notwithstanding the foregoing, Contractor shall be responsible for any required emergency notification or other immediate and follow-up reporting with respect to any spill or release of a Hazardous Substance

into the environment at the Site that occurs after the Commencement Date because of or during the performance of the Work.

ARTICLE 20

INDEMNIFICATION

20.1 Contractor's Indemnity. To the fullest extent permitted by law, Contractor shall indemnify, defend and hold harmless Owner, Operator and their respective officers, directors, employees, agents, affiliates and representatives (the "Indemnified Person(s)"), from and against any and all claims, demands, suits, liabilities, causes of action, losses, expenses, damages, fines or penalties, including court costs and reasonable attorneys' fees, arising out of or resulting from personal injury or third party property damage (collectively "Claims"), to the extent caused by any negligent, grossly negligent or intentionally wrongful acts, errors or omissions by Contractor, its Subcontractors, agents, or any one directly or indirectly employed by them or any one for whose acts they may be liable; provided, however, this indemnity shall not apply to the extent any such Claim arises or results from the negligent, grossly negligent or intentionally wrongful acts or omissions of Owner. This indemnification, defense and hold harmless obligation shall survive the termination or expiration of this Agreement until the expiration of the applicable statute of limitations therefor. In claims against any person or entity indemnified hereunder by an employee of Contractor, a Subcontractor, anyone employed by them or anyone for whose acts they may be liable, the indemnification obligation shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for Contractor, a Subcontractor or any other above-referenced party under workers' or workmen's compensation acts, disability benefit acts, other employee benefit acts.

20.2 Claims. Owner shall promptly give notice to Contractor of any third party action for which indemnification is being sought and provide the Contractor with the opportunity to participate in all settlement negotiations respecting such Claim.

20.3 Liens. Contractor shall keep the Site free from all liens, charges, claims and judgments, security interests or encumbrances ("Liens") arising out of the performance of the Work under this Agreement and shall indemnify, defend and hold harmless Owner and Operator from and against all costs, charges and expenses including attorney's fees and charges that Owner or Operator may incur resulting from or arising out of any such Lien. Contractor's obligations with respect to Liens covered by this Section 20.3 are subject to the conditions that:

- (i) Owner gives Contractor prompt notice of any such Lien of which it has knowledge;
- (ii) Owner cooperates in the defense of any such Lien; and
- (iii) Contractor has sole control of the defense and settlement, to the extent of Contractor's liability, for any such Lien, provided that Contractor shall promptly confirm in writing its obligation to indemnify Owner with respect

to all costs and expenses with respect to such lien or claim. Contractor shall take prompt steps to discharge any such Lien filed against the Facility, or upon any Equipment or structures encompassed therein, or upon the premises upon which they are located by any Subcontractor based on a claim for payment in connection with the Work. If Contractor fails to promptly discharge, bond or otherwise assure the payment of (as provided below) any such Lien, Owner shall promptly notify Contractor in writing and shall be entitled to take any reasonable action to satisfy, defend, settle or otherwise remove such lien at Contractor's expense, including attorneys' fees and charges. Owner shall have the right, to (A) deduct any such expenses from any payment due, or which may become due, to Contractor or (B) to draw upon the Retainage therefor. Contractor shall have the right to contest any such Lien provided it first provides to Owner a bond or other assurances of payment reasonably satisfactory to Owner, in the amount of such Lien in form and substance satisfactory to Owner.

ARTICLE 21

INSURANCE

Contractor and Owner shall provide and maintain the insurance specified in Exhibit W in accordance with the terms and provisions thereof.

ARTICLE 22

TITLE & RISK OF LOSS

22.1 Transfer of Title. Except as otherwise expressly provided herein, transfer of title to the Work, including Equipment, designs and specifications shall pass to Owner upon the earlier of delivery to the Site, incorporation into the Work, or upon payment of the amount properly due under a Payment Request covering such Work, notwithstanding the Retention Amount and other amounts withheld by Owner in accordance with the terms of this Agreement. The transfer of title does not relieve Contractor of its obligation to provide and pay for all transportation and storage in connection with the Work. Passage of title to the Work, including Equipment, shall be free and clear of all Liens except for those Liens which may be created by action of Owner; and that Work, including, Equipment, will not have been acquired by Contractor, or by any other person performing a portion of the Work, including, any Subcontractor, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller thereof, or otherwise imposed by Contractor or such other person, which would survive payment to Contractor. Passage of title shall not affect the allocation of risk of loss.

22.2 Risk of Loss. Care, custody and control of the Facility and the risk of loss of the Work shall pass to Owner on the earlier of the Substantial Completion Date or the Final Completion Date. Owner shall assume care, custody and control of the Facility and the risk of

physical loss or damage thereto from and after such date. Contractor shall be obligated to replace, repair or reconstruct the Facility, including Equipment intended for the use of or necessary to the completion of the Facility and furnished by Contractor, its Subcontractors or any other Person which are lost, damaged, or destroyed prior to transfer of care, custody and control and risk of loss of the Work to Owner, subject to the provisions of Article 9 hereof. Upon termination of this Agreement, pursuant to Article 24, care, custody and control of the Facility shall pass to Owner.

22.3 Contractor Tools. Risk of loss or damage to the Equipment or tools of Contractor, its employees or its Subcontractors shall at all times remain with Contractor, its employees or its Subcontractors.

ARTICLE 23

DISPUTE RESOLUTION

23.1 Resolution by the Parties.

23.1(a) Key Personnel to Resolve. An authorized representative of a party may submit a claim, dispute or other controversy arising out of, or relating to, this Agreement which an authorized representative of a party does not believe can be resolved by the parties' Authorized Representatives (hereinafter collectively referred to as a "Dispute") to a Senior Officer from each Party for resolution by mutual agreement between the Senior Officers. Any agreed determination by the Senior Officers shall be final and binding upon the parties. However, if the Senior Officers do not arrive at a mutual decision as to the Dispute within ten (10) calendar days (or such longer time as the parties agree) after notice to both individuals of the Dispute, such Dispute shall, if the value of the Dispute to the aggrieved party is less than \$1,000,000 (the "Arbitration Range") then be settled by arbitration in accordance with the terms and provisions set forth in Section 23.2 hereof. If the Dispute is not in the Arbitration Range, either party may pursue any other available remedy at law or in equity. For purposes of this Agreement, the term "Senior Officer" means the chief executive officer, president or any senior vice president of a party.

23.2 Arbitration Proceedings.

23.2(a) Demand for Arbitration. All arbitration proceedings shall take place in Louisville, Kentucky and shall be conducted in accordance with the Construction Industry Rules then in effect of the American Arbitration Association. Notice of the demand for arbitration shall be filed with the other party and shall be made within a reasonable time after such party is permitted to arbitrate the Dispute as provided herein ("Notice"). The Notice shall specify the name and address of an arbitrator designated by such party, the nature of the dispute and the amount involved. In no event shall demand for arbitration be made or permitted after the date when the institution of legal or equitable proceedings based on such Dispute would be barred by the applicable Kentucky statute of limitations.

23.2(b) Selection of Arbitrator. Within twenty-one (21) calendar days after receipt of the Notice, the party that received such Notice shall respond (the "Response") by written notice specifying the name and address of the arbitrator designated by it. If a party fails to deliver its response within such twenty-one (21) calendar day period, the arbitrator specified in the Notice shall be the sole arbitrator of the dispute. Within fourteen (14) calendar days after receipt of the Response, the two arbitrators shall appoint a third arbitrator. All arbitrators shall be in all cases neutral persons with no financial or personal interest in the result of the arbitration or any present relationship with the parties or their counsel. The arbitrators shall endeavor to conduct the arbitration proceedings expeditiously in order to be able to render a decision within thirty (30) calendar days of selection of the third arbitrator. The decision of the third arbitrator shall control if no majority decision can be reached.

23.2(c) Consolidation. No arbitration arising under this Agreement shall include, by consolidation, joinder or any other manner, any person not a party to this Contract, unless (i) such person is substantially involved in a common question of fact or law, (ii) the presence of such person is required if complete relief is to be accorded in the arbitration, and (iii) such person has consented to such inclusion.

23.2(d) Binding Nature. The agreement herein among the parties to arbitrate under certain circumstances shall be specifically enforceable in any court of competent jurisdiction. In rendering their decision and award, the arbitrators shall not add to, subtract from, or otherwise modify the provisions of this Agreement and shall apply the substantive law of the Commonwealth of Kentucky. Any decision rendered by the arbitrator(s) pursuant to any arbitration shall be in writing, shall explain the basis on which the decision or award is based, shall be delivered to both parties and shall be final and binding upon the parties hereto, and judgment may be entered upon it in accordance with Applicable Law in any court of competent jurisdiction.

23.2(e) Costs and Expenses. The arbitrators, at their discretion, shall have the authority to award the prevailing party recovery of all or any portion of the costs of the arbitration, including reasonable attorneys fees and charges.

23.2(f) Discovery. The parties have the right to conduct reasonable discovery. Any party may apply to the arbitrator(s) for an order limiting the scope of discovery or the time to complete such discovery. The right to conduct discovery shall be granted by the arbitrators in their sole discretion with a view to avoiding surprise and providing reasonable access to necessary information or to information likely to be presented during the course of the arbitration.

23.2(g) Cross-examination. Direct testimony may be admitted by sworn affidavit, provided that the opposing party is given the right to cross-examine any witness whose testimony is so admitted.

23.2(h) Arbitration Notices. Communications under this Article 23 may be given in the manner provided in Section 25.5.

All claims, disputes or other (controversies arising out of, or relating to, this Agreement (hereinafter collectively referred to as a "Dispute") shall initially be submitted to a Senior Officer

from each Party for resolution by mutual agreement between said officers. Any mutual determination by the Senior Officers shall be final and binding upon the parties. However, should such Senior Officers fail to arrive at a mutual decision as to the Dispute within twenty (20) calendar days after notice to both individuals of the Dispute, such Dispute shall then be settled by arbitration in accordance with the terms and provisions set forth in Section 23.2 hereof.

23.4 Continuation of Work. Pending final resolution of any Dispute, Contractor shall proceed diligently with the performance of its duties and obligations under this Agreement, and Owner shall continue to make undisputed payments in accordance with such Agreement.

ARTICLE 24

TERMINATION

24.1 Termination for Convenience. Owner may terminate this Agreement without cause upon written notice to Contractor. If this Agreement is so terminated, Contractor shall immediately cease performance of the Work upon receipt of such notice and, as its sole and exclusive remedy hereunder, payment for Work properly performed to the date of termination (excluding amounts properly withheld) and reimbursement for (i) all cancellation charges necessarily incurred by Contractor and (ii) other termination-related costs necessarily incurred by Contractor and mitigated by Contractor and to the maximum feasible extent.

24.2 Termination by Owner for Cause.

24.2(a) Default by Contractor. The occurrence of any one or more of the following matters constitutes a default by Contractor under this Agreement (a "Contractor Default"):

- (i) Contractor becomes insolvent or generally fails to pay, or admits in writing its inability or unwillingness to pay, its debts as they become due;
- (ii) Contractor makes a general assignment for the benefit of its creditors;
- (iii) Contractor shall commence or consent to any case, proceeding or other action (a) seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of Contractor or of Contractor's debts under any law relating to bankruptcy, insolvency, reorganization or relief of debts, or (b) seeking appointment of a receiver, trustee or similar official for Contractor or for all or any part of Contractor's property;
- (iv) any case, proceeding or other action against Contractor shall be commenced (a) seeking to have an order for relief entered against Contractor as debtor, (b) seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of Contractor or Contractor's debts under any law relating to bankruptcy, insolvency, reorganization or relief of

- debtors, or (c) seeking appointment of a receiver, trustee, or similar official for Contractor or for all or any part of Contractor's property;
- (v) the material breach of any representation or warranty made by Contractor herein;
 - (vi) Contractor attempts to assign, convey or transfer this Agreement or any interest herein without Owner's prior written consent, except as otherwise permitted by this Agreement; or
 - (vii) Contractor fails to materially observe or perform any other covenant, agreement, obligation, duty or provision of this Agreement, and such failure continues for thirty (30) Days after Contractor's receipt of written notice thereof from Owner.
 - (viii) the guaranty of Black & Veatch, LLP (or its successor) to be provided by Contractor pursuant to Section 25.15 shall at any time prior to the completion of all of the obligations of Contractor hereunder fail to be a legal, valid and binding obligation of Black & Veatch, LLP (or its successor), enforceable against Black & Veatch, LLP (or its successor) in accordance with its terms.

24.2(b) Owner's Remedies. Upon the occurrence of a Contractor Default, Owner may, without prejudice to any other right or remedy Owner may have under this Agreement (i) terminate this Agreement; (ii) take possession of the Site and of all materials, equipment, tools and machinery thereon owned by Contractor; (iii) finish the Work by whatever method Owner may deem expedient; and (iv) draw on the Retainage or withhold amounts due to Contractor to make payments therefor. If the unpaid balance of the Contract Price exceeds the cost of finishing the Work, then Contractor shall be paid for all Work properly performed by Contractor to the date of termination (which amount shall in no event exceed the difference between the unpaid portion of the Contract Price and Owner's cost of completing the Work). However, if the cost of finishing the Work exceeds the unpaid balance of the Contract Price, Contractor shall immediately pay the difference to Owner on demand.

24.3 Termination by Contractor for Cause

24.3(a) Default by Owner. The occurrence of any one of more of the following matters, and the continuation of the same for thirty (30) days after Owner's receipt of written notice thereof from Contractor, shall constitute a default by Owner under this Agreement (an "Owner Default"):

- (i) Owner becomes insolvent or generally fails to pay, or admits in writing its inability or unwillingness to pay, its debts as they become due;
- (ii) Owner makes a general assignment for the benefit of its creditors;

- (iii) Owner shall commence or consent to any case, proceeding or other action
 - (a) seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of Owner or of Owner's debts under any law relating to bankruptcy, insolvency, reorganization or relief of debts, or
 - (b) seeking appointment of a receiver, trustee or similar official for Owner or for all or any part of Owner's property;

- (iv) any case, proceeding or other action against Owner shall be commenced
 - (a) seeking to have an order for relief entered against Owner as debtor,
 - (b) seeking reorganization, arrangement, adjustment, liquidation, dissolution or composition of Owner or Owner's debts under any law relating to bankruptcy, insolvency, reorganization or relief of debtors, or
 - (c) seeking appointment of a receiver, trustee, or similar official for Owner or for all or any part of Owner's property;

- (v) the breach of any material representation or warranty made by Owner herein; or

- (vi) Owner fails to observe or perform any material covenant, agreement, obligation, duty or provision of this Agreement and such failure continues for thirty (30) Days after Owner's receipt of written notice thereof from Contractor.

24.3(b) Contractor's Remedies. Upon the occurrence of an Owner Default and subject to Section 23.3, Contractor may suspend its performance of the Work (for a maximum of 15 days in the aggregate) or terminate this Agreement. If this Agreement is so terminated, Contractor, as its sole and exclusive remedy hereunder, shall be entitled to receive an amount calculated in accordance with Section 24.1.

24.4 Suspension of the Work. Owner may, without cause, order Contractor to suspend the Work in whole or in part for such period of time as Owner may determine. Any such suspension shall commence on or before the fifth (5th) day after Contractor's receipt of written notice thereof from Owner. Contractor shall resume any suspended Work within five (5) Days of Owner's written notice directing the same. Should a suspension of the entire Work which is ordered by Owner continue for one hundred and twenty (120) or more consecutive calendar days, either Party may thereafter terminate this Agreement by written notice to the other Party and the rights and remedies of Contractor shall be the same as those which are expressed in Section 24.1 hereof in the event of termination for convenience by Owner. Suspension costs shall be paid on a monthly basis.

ARTICLE 25

MISCELLANEOUS PROVISIONS

25.1 Governing Law. This Agreement shall be governed by, and construed in accordance with, the laws of the Commonwealth of Kentucky.

25.2 Entire Agreement. This Agreement represents the entire agreement between Owner and Contractor with respect to the subject matter hereof, and supersedes all prior negotiations, binding documents, representations or agreements, whether written or oral. Except for an Owner Authorization pursuant to Section 10.1(d), this Agreement may be amended or modified only by a written instrument signed by both Owner and Contractor.

25.3 Successors and Assigns. Contractor may not assign, convey or transfer this Agreement, or any part thereof, without Owner's prior written consent. This Agreement shall be binding upon, and inure to the benefit of, the successors and permitted assigns of the Parties hereto. Owner may assign, novate or declare any trust of the whole or any part of this Agreement and any benefit, interest, right or cause of action arising under this Agreement to an affiliate, Person or third party with comparable technical and financial abilities.

25.4 Contractual Relationship. Nothing contained in this Agreement shall be construed as creating a contractual relationship of any kind (i) between Owner and a Subcontractor (except as provided in Section 13.3 hereof), or (ii) between any persons or entities other than Owner and Contractor. Contractor is an independent contractor and all of its agents and employees shall be subject solely to the control, supervision, and authority of Contractor. Owner and Contractor disclaim any intention to create a partnership or joint venture. Contractor shall not be entitled to act for or have any power or authority assume any obligation or responsibility on behalf of Owner.

25.5 Notices. All notices pertaining to this Agreement shall be in writing, signed by a duly authorized representative of the Party giving such notice and shall be deemed given when received by personal delivery, certified mail, recognized express courier or facsimile (followed by certified mail or recognized express courier) to the other Party at the address designated below:

If to Owner:

Noel W. Lively
Manager, Generation Construction
Kentucky Utilities Company
815 Dix Dam Road
Burgin, Kentucky 40310
Telephone: 606-748-4620
Fax: 606-748-4628

If to Contractor:

Overland Contracting, Inc.
c/o Ed Lemons
11401 Lamar
Overland Park, Kansas 66211
Telephone: 913-458-2097
Fax: 913-458-2934

25.6 Rights Cumulative. Except to the extent remedies are identified in this Agreement as being the exclusive remedy, (i) rights and remedies available to Owner and/or Contractor as set forth in this Agreement shall be cumulative with and in addition to, and not in limitation of, any other rights or remedies available to such parties at law and/or in equity, and (ii) any specific right or remedy conferred upon or reserved to Owner and/or Contractor in any provision of this Agreement shall not preclude the concurrent or consecutive exercise of a right or remedy provided for in any other provision hereof. Notwithstanding the foregoing, the rights and remedies of Owner shall remain subject to the liability limitations set forth in Section 7.7.

25.7 Incorporation by Reference. The recitals set forth on the first page of this Agreement are hereby incorporated into this Agreement by this reference and expressly made a part of this Agreement.

25.8 No Waiver. No course of dealing or failure of Owner and/or Contractor to enforce strictly any term, right or condition of this Agreement shall be construed as a waiver of such term, right or condition. No express waiver of any term, right or condition of this Agreement shall operate as a waiver of any other term, right or condition.

25.9 Overdue Rate. Unpaid amounts shall bear interest at an annual rate equal to two percent (2%) in excess of the prime rate as published in The Wall Street Journal from the date due until paid, provided however, in the event more than one prime rate is published, the average of such rates shall be used for purposes of this Agreement (the "Interest Rate").

25.10 Audit.

25.10(a) Unit Prices. Where Contractor's invoice includes compensation for Work performed on a unit price basis, Contractor shall submit Contractor's determination of units of Work performed determined in accordance with the provisions of this Agreement, and substantiated by documents. Upon verification by Owner of said documents, Owner shall advise Contractor in writing of either Owner's acceptance of Contractor's determination of units or Owner's determination of such units. If Contractor believes that Owner has incorrectly determined the units of Work performed, Contractor shall comply with the provisions of Article 23. All undisputed amounts shall be due and payable in accordance with this Agreement.

25.10(b) Time and Materials. When Contractor's invoice includes compensation for Work performed on a time and material basis, Contractor shall maintain all records and accounts pertaining to Work performed by Contractor under this Agreement on a time and materials basis for a period of two (2) years after final payment under this Agreement. Owner

shall have the right for the duration of this Agreement and for a period of two (2) years thereafter, to have such Contractor books and records reviewed by a mutually acceptable third party independent auditor to the extent necessary to verify that Contractor invoice or claim is correct with respect to criteria set forth in Section 10.1(b).

25.10(c) Lump Sum. Contractor's lump sum, fixed fee, published price lists and unit rates, which have been agreed upon and specified herein, shall not be subject to audit. The independent auditor shall not be required to divulge the specific content of any record which Contractor reasonably considers proprietary.

25.11 Survival. Articles 7, 13, 16, 17, 18, 19, 20 and 23 of Agreement and all other Articles and Sections thereunder providing for indemnification, or limitation of or protection against liability of either Party, shall survive the termination, cancellation, or expiration of this Agreement.

25.12 No Third Party Beneficiaries. The provisions of this Agreement are intended for the sole benefit of Owner and Contractor and, except to the extent specifically identified herein, there are no third party beneficiaries other than assignees contemplated by the terms herein.

25.13 Non-Recourse. Anything to the contrary notwithstanding, the obligations of Owner under this Agreement are special obligations of Owner and do not constitute obligations of (and no recourse shall be had with respect thereto to) any partner of Owner, or any shareholder, partner, member, officer or director of any such partner and no action shall be brought or maintained against any such partner, or any shareholder, partner, member, officer or director of any thereof.

25.14 Parent Guarantee. Contractor shall cause Black & Veatch, L.L.P to deliver to Owner prior to the Commencement Date, a performance and payment guarantee, in the form attached hereto as Exhibit H, guaranteeing the full and timely payment and performance of all of Contractor's obligations under this Agreement.

25.15 Provisions Required by Law. Any term or condition required to be contained in this Agreement as a matter of law which is not so contained herein shall be deemed to be incorporated in this Agreement as though originally set forth herein.

25.16 Severability. If any provision of this Agreement, or the application thereof to any Person or circumstance, shall to any extent be held invalid or unenforceable by a court of competent jurisdiction or pursuant to arbitration as provided herein, the remainder of this Agreement, and the application of such provision to Persons or circumstances other than those as to which it is specifically held invalid or unenforceable, shall not be affected thereby, and each and every remaining provision of this Agreement shall be valid and binding to the fullest extent permitted by law; provided, however, the parties agree to negotiate in good faith and shall reform this Agreement to as closely as possible resemble the original intent and allocation of risks and benefits.

25.17 Joint Effort. Preparation of this Agreement has been a joint effort of the Parties and the resulting document shall not be construed more severely against one of the Parties than against the other.

25.18 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

25.19 Escrow Waiver. The parties agree, if applicable, to waive the escrow provisions of K.R.S. 371.60.

25.20 Labor Harmony. Contractor shall maintain workable and harmonious relations with its employees and between Contractor's employees and the employees of other contractors, subcontractors and the employees of Owner. Whenever Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of the Work, Contractor shall immediately give notice thereof, including all relevant information, to Owner.

IN WITNESS WHEREOF the Parties have caused this Agreement to be executed by their duly authorized representatives as of this 16th day of December, 1998.

LG&E CAPITAL CORP.

By: Camilla

Title: CEO

OVERLAND CONTRACTING, INC.

By: C.E. Lemons

Title: Representative

SITE MAP

FACILITIES LEGEND

1. COMBUSTION TURBINE GENERATORS
2. COMBUSTION TURBINE INLET FILTERS
3. ELECTRICAL EQUIPMENT BUILDING
4. COMBUSTION TURBINE GENERATOR
5. GENERATOR STEP-UP TRANSFORMERS
6. AUX POWER TRANSFORMERS
7. 138KV SUBSTATION
9. STACK
10. FIN FAN COOLER
11. NOX WATER STORAGE TANKS
12. NOX INJECTION WATER SUPPLY PUMPS
13. FUEL OIL STORAGE TANKS
14. FUEL OIL CONTAINMENT BERM
15. FUEL OIL UNLOADING RAIL TRACK (6 CARS)
16. FUEL OIL UNLOADING PUMPS
17. FUEL OIL FORWARDING PUMPS
18. SITE SECURITY FENCE
19. SITE ACCESS GATE
23. SITE ACCESS ROADS
24. PARKING
25. 2" PVC WATER LINE
27. WAREHOUSE BUILDING
28. EXISTING 345KV SUBSTATION
29. EXISTING 138KV SUBSTATION
30. EXISTING TRANSMISSION TOWER, POLE OR LINES
31. SERVICE/FIRE WATER TANK
32. FIRE WATER PUMP BUILDING
34. EXISTING CEMETERY
35. OIL-WATER SEPARATOR
36. FUEL OIL TRUCK TURN AROUND
37. TRUCK FUEL UNLOADING AREA
38. NATURAL GAS PRESSURE REGULATING STATION
40. CONSTRUCTION PARKING
41. RELOCATED PLANT ACCESS ROAD
42. FUEL OIL UNLOADING STATIONS
43. EXPANDED RAIL YARD
45. TRANSMISSION LINES AND TOWER
47. CONSTRUCTION OFFICES, TRAILERS, & LAYDOWN AREA
48. CONSTRUCTION ACCESS ROAD
49. RELOCATED DRIVEWAY
50. CONSTRUCTION PARKING ACCESS ROAD
51. WATER TREATMENT BUILDING
52. FUEL OIL METERING STATION
53. KENTUCKY UTILITIES CONSTRUCTION TRAILER
54. UNDERGROUND SEWAGE HOLDING TANK
56. WASTE WATER LIFT STATION

A

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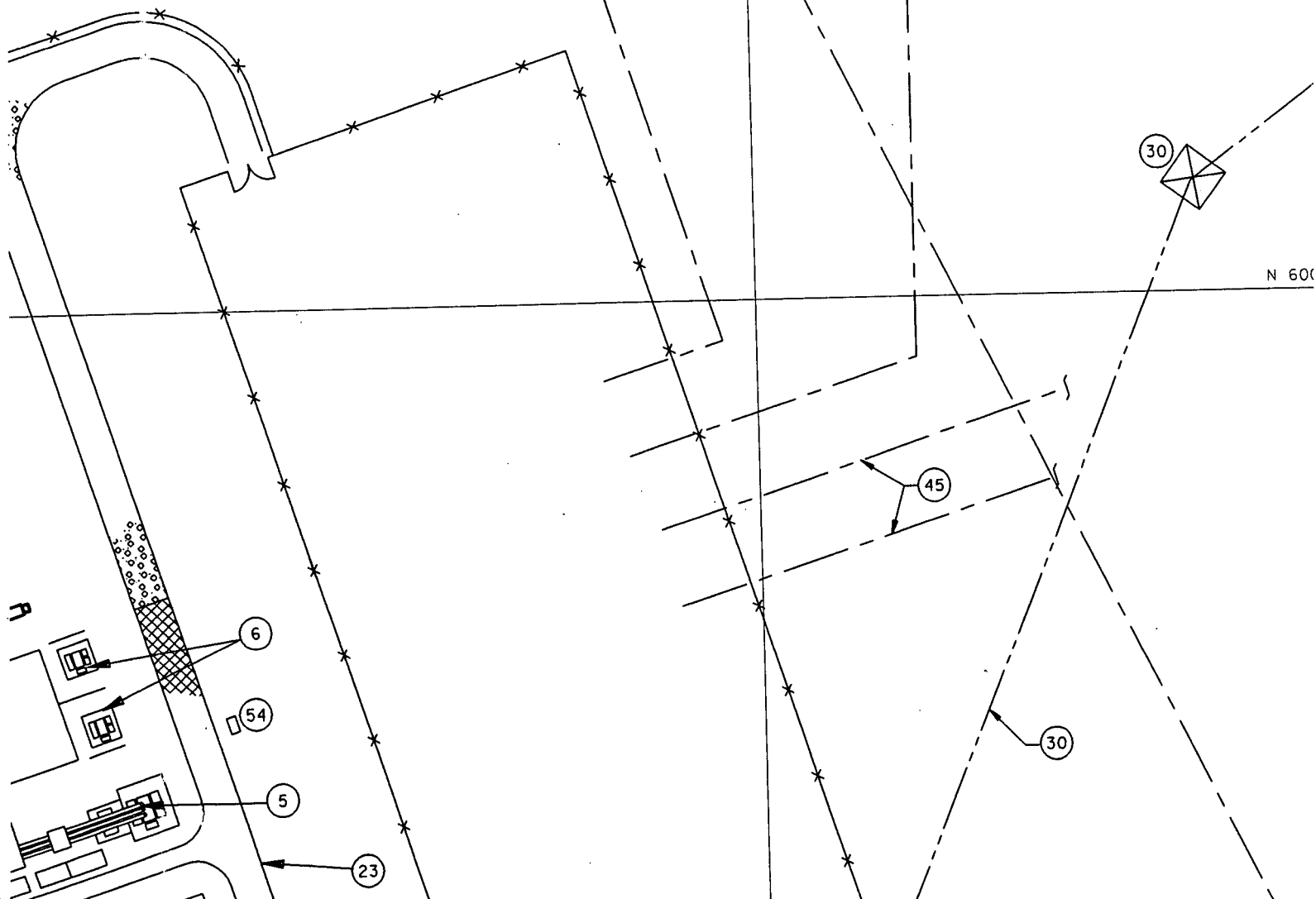
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EL 878.53

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CL UNIT 7

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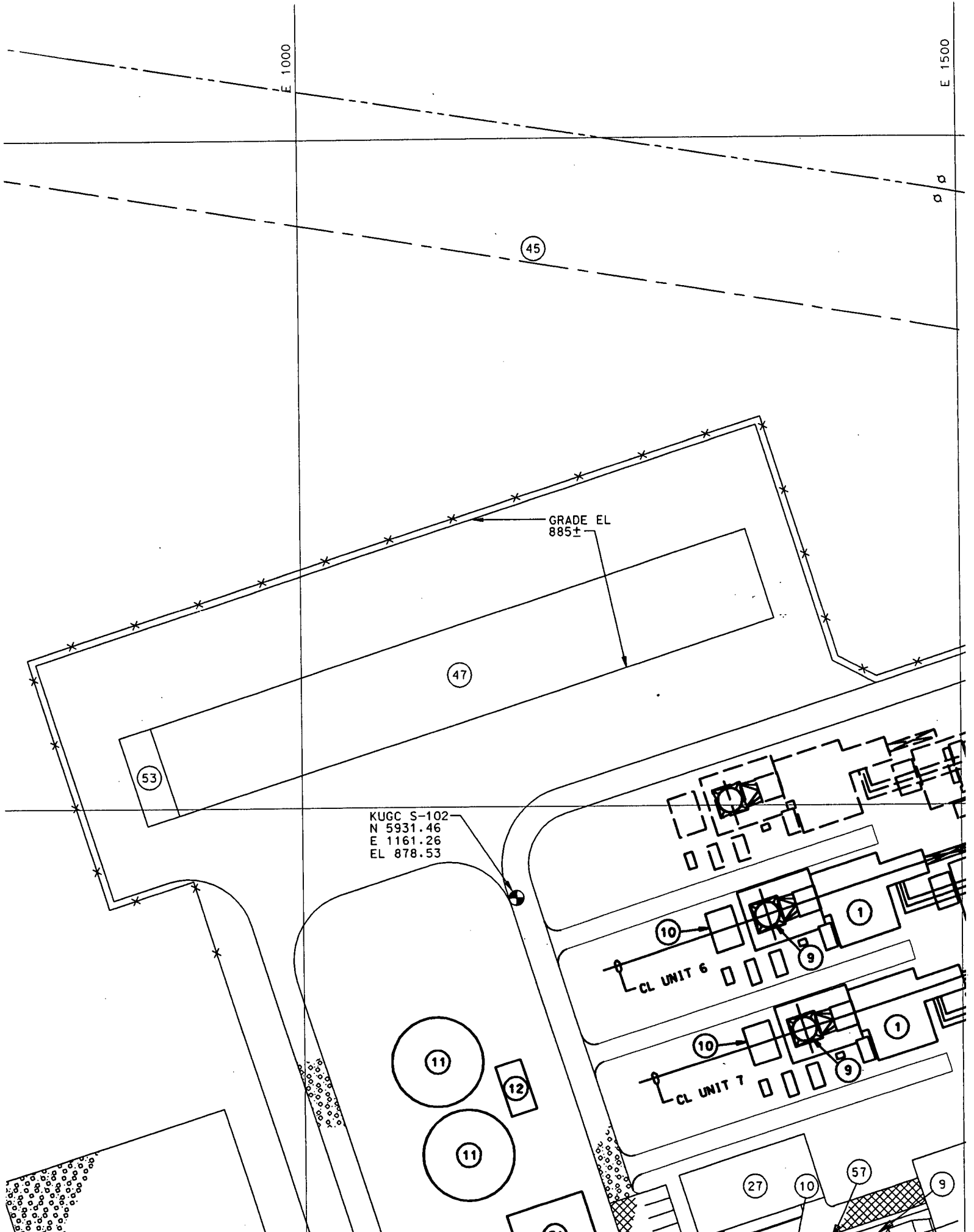
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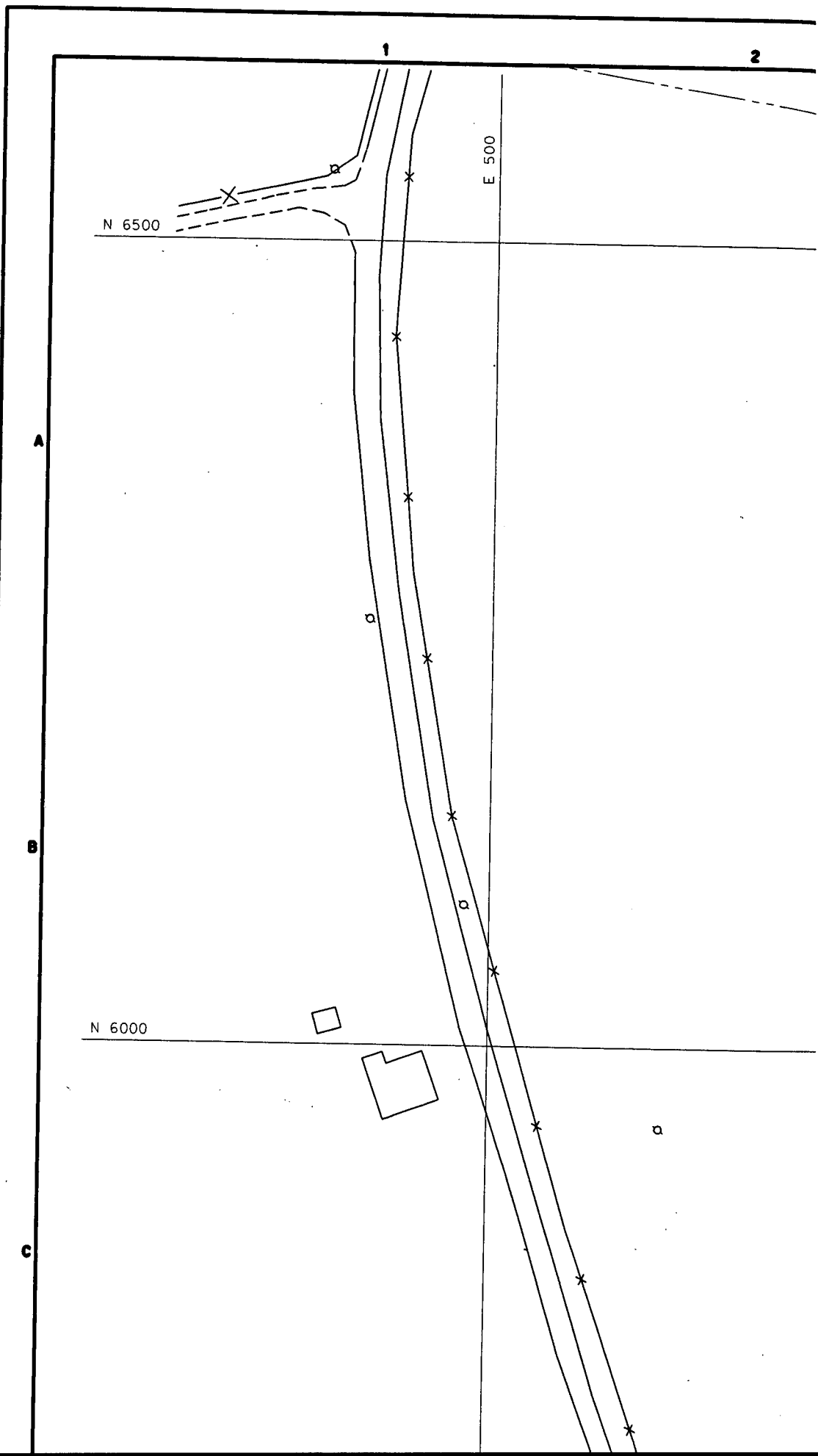
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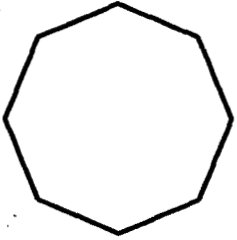
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NT	AREA	PROJECT	DRAWING NUMBER	REV
	CODE			
NE ADDITION	61258-CSTU-S1001		INC.	



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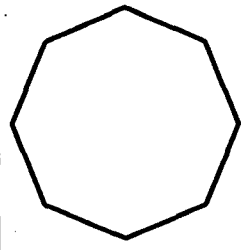
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1. ITEMS SHOWN AS DASHED LINES REPRESENT FUTURE INSTALLATION UNLESS OTHERWISE NOTED.

2. GRID SYSTEM SHOWN IS EXISTING PLANT GRID.

NOTES

NT	AREA	PROJECT	DRAWING NUMBER	REV
	CODE			
NE ADDITION	61258-CSTU-S1001			
INC.				



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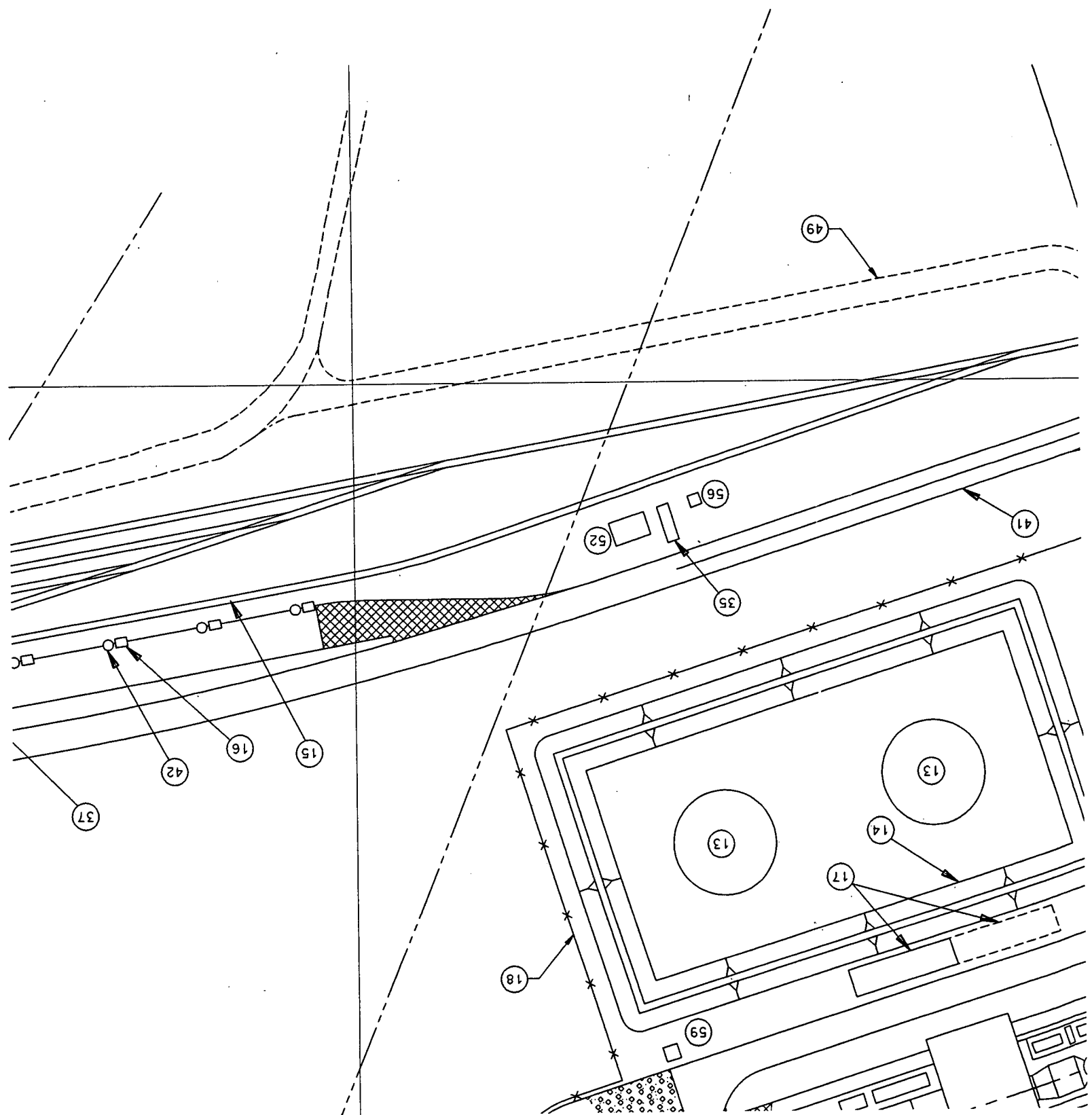
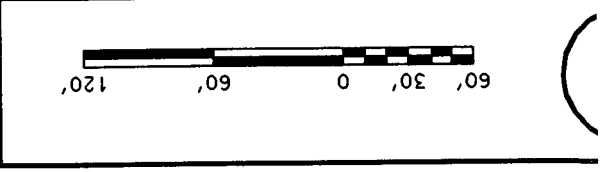
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2. GRID SYSTEM SHOWN IS EXISTING PLANT GRID.

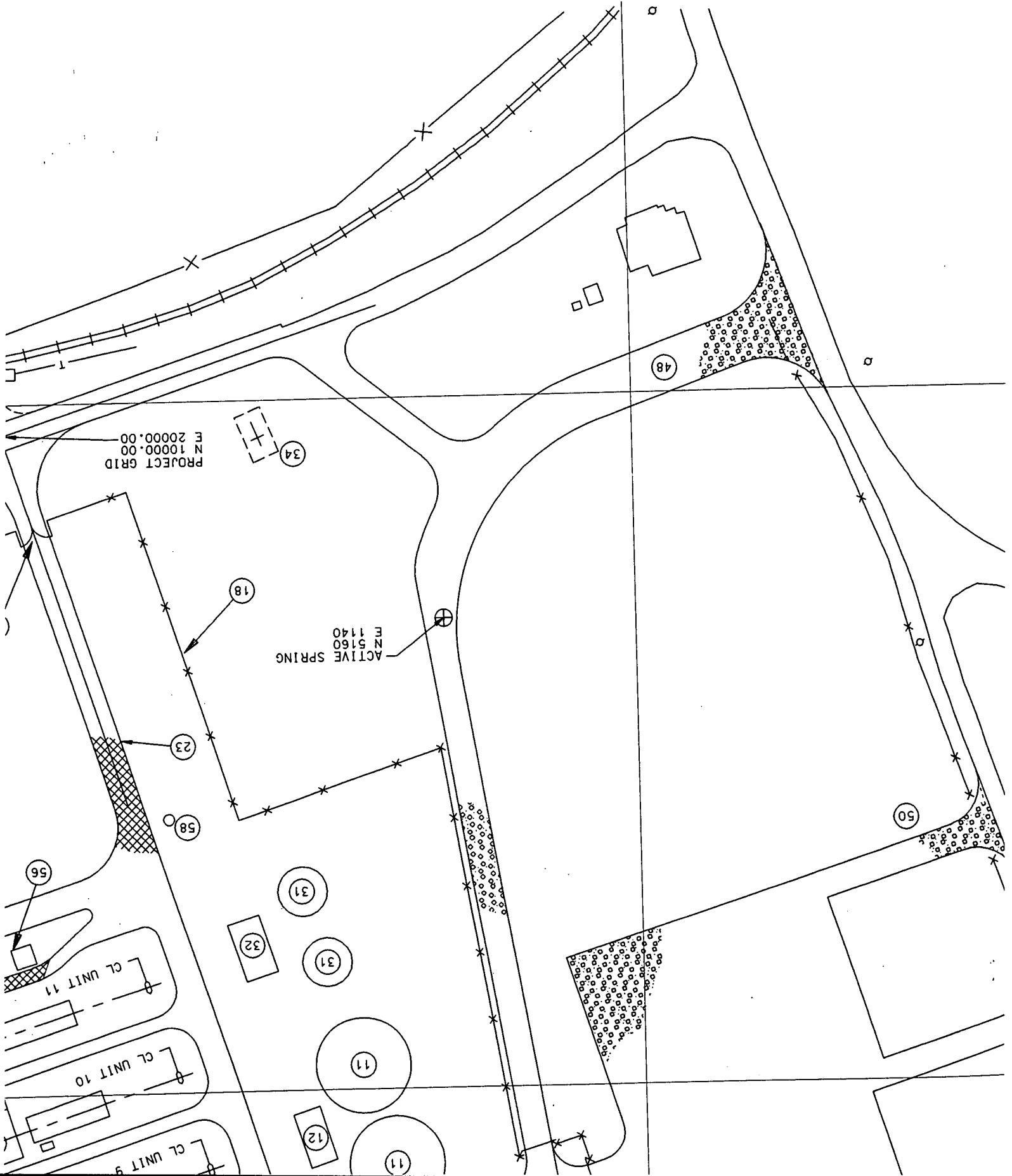
NOTES

E. L.	BLACK & VEATCH		
	ENGINEER	DRAWN	
	DATE	CHECKED	
	MSS		

I HEREBY CERTIFY THAT THIS DOCUMENT WAS
 PREPARED BY ME OR UNDER MY DIRECT SUPER-
 VISION AND THAT I AM A DULY REGISTERED PRO-
 FESSIONAL ENGINEER UNDER THE LAWS OF THE
 STATE OF KENTUCKY
 SIGNED _____
 DATE _____
 REG. NO. _____



BY CHK APPLM		REVISIONS AND RECORD OF ISSUE				NO	DATE



PROJECTED SOURCES OF FUNDS
(\$000'S)

KENTUCKY UTILITIES

	<u>1999</u>
Sources of Funds:	
Internal Sources	\$128,900
External Financing	<u>\$50,000</u>
Total Sources	<u><u>\$178,900</u></u>
Capital Requirements (1)	<u><u>\$178,900</u></u>
Internal Sources as a Percentage of Capital Requirements	<u><u>72.05%</u></u>
(1) Includes the Following Expenditures Two 164MW CTs at E.W. Brown	<u><u>\$77,500</u></u>

LOUISVILLE GAS & ELECTRIC

	<u>1999</u>
Sources of Funds:	
Internal Sources	\$134,000
External Financing	<u>\$68,000</u>
Total Sources	<u><u>\$202,000</u></u>
Capital Requirements (2)	<u><u>\$202,000</u></u>
Internal Sources as a Percentage of Capital Requirements	<u><u>66.34%</u></u>
(2) Includes the Following Expenditures Two 164MW CTs at E.W. Brown	<u><u>\$47,500</u></u>

Ronald L. Wilhite
Testimony

BEFORE THE
KENTUCKY PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS & ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. _____
AND NECESSITY FOR THE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

TESTIMONY OF

RONALD L. WILLHITE
VICE PRESIDENT - REGULATORY AFFAIRS
LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

1 I. CASE OVERVIEW

2 Q. What is the purpose of your testimony?

3 A. The purpose of my testimony is to provide a general review
4 of the evidence presented by LG&E's and KU's application,
5 and to address the regulatory issues in this case.

6 Q. Are KU and LG&E requesting that the Commission grant the
7 companies a Certificate of Convenience and Necessity to
8 construct combustion turbines?

9 A. No. KU and LG&E are not constructing the turbines. LG&E
10 Capital Corp., an unregulated subsidiary of LG&E Energy
11 Corp., has purchased the combustion turbines and contracted
12 for their construction. LG&E and KU are requesting a
13 Certificate of Public Convenience and Necessity to acquire
14 ownership of the two 164 Megawatt combustion turbines from
15 LG&E Capital Corp.

16 Q. What evidence are LG&E and KU presenting in this case to
17 support their request for a Certificate of Public
18 Convenience and Necessity to acquire the combustion
19 turbines?

20 A. We are presenting the application, the exhibits to the
21 application, and the testimony of three other witnesses in
22 this case. These witnesses and the subjects of their
23 testimony are:

1 H. Bruce Sauer, Manager of Forecasting and Marketing
2 Analysis for LG&E and KU, presents the 1998 load forecast,
3 briefly describes how it was prepared and summarizes the
4 results. Exhibit HBS-3 to Mr. Sauer's testimony describes
5 in more detail the Energy and Demand Forecasting
6 Methodologies that each company used.

7 James W. Kasey, Senior Vice President of LG&E
8 Marketing, Inc., describes wholesale power market
9 conditions and how these have changed since 1994, and
10 explains what market conditions are expected for the summer
11 of 1999.

12 Lonnie E. Bellar, Manager of Generation Systems
13 Planning for LG&E and KU, presents the Resource Assessment
14 and its conclusions.

15 **A. Load Forecast**

16 **Q. Do LG&E and KU jointly plan and provide for their capacity**
17 **needs?**

18 **A.** Yes. Both companies jointly plan and provide for capacity
19 needs pursuant to FERC Rate Schedule No. 1, Power Supply
20 System Agreement. The Companies have recently completed a
21 joint load forecast and resource assessment. The
22 assessment shows that the Companies have a joint need for
23 approximately 470 megawatts of peaking capacity beginning

1 in the summer of 1999 to maintain an adequate reserve
2 margin during peak periods of consumption.

3 **B. Resource Assessment**

4 **Q. Does the public convenience and necessity require the**
5 **acquisition of the two combustion turbines by LG&E and KU?**

6 A. Yes. The acquisition of the two combustion turbines is the
7 most reasonable and economical way for the companies to
8 meet their reserve margin. The testimony of Lonnie Bellar,
9 which is being submitted as part of this application,
10 presents the Companies' Resource Assessment and explains
11 which alternatives were considered. The Resource
12 Assessment concludes that acquiring the combustion turbines
13 for commercial operation in August 1999 is the most
14 reasonable economic decision to meet the resource needs of
15 LG&E and KU from the available options at this time.

16 **Q. Is the acquisition of these combustion turbines consistent**
17 **with the two Companies' Integrated Resource Plans?**

18 A. Yes. The Companies' Integrated Resource Plans (IRPs)
19 recommend the installation of simple-cycle combustion
20 turbines or the purchase of peaking power as the initial
21 step of a long-range plan. In addition, the Companies'
22 respective IRPs recommend an ongoing evaluation of whether
23 to "buy or build" to meet their incremental margin needs.
24 LG&E and KU both recognized, before as well as after the
25 merger, the need to acquire additional combustion turbines

1 at some point. However, at the time of the merger, we
2 projected that we would be able to continue to purchase
3 power to meet our resource needs until 2001, when new
4 combustion turbines would be needed.

5 **Q. Have LG&E's and KU's plans to meet their reserve margin**
6 **needs changed since the merger?**

7 A. Since the merger of their parent corporations, the
8 Companies have been relying on purchased power to maintain
9 their respective reserve margins. Recently, however, the
10 demand for both wholesale power and new combustion turbines
11 has increased unexpectedly. Instead of a "buyer's market",
12 we now have a "seller's market." Mr. Bellar's testimony
13 explains how the changes in the wholesale energy market
14 have affected the supply of combustion turbines and power
15 for purchase and how our Resource Assessment strategy was
16 affected.

17 Overall, the volatility of the market has
18 significantly increased the price and risk of relying upon
19 purchased power to meet peak needs. As a result, the
20 demand for, and price of, combustion turbines has also
21 increased.

22 The Companies have a clear need to reduce their
23 exposure to the volatility of energy prices in the
24 wholesale market. We plan to accomplish this through a
25 diversified approach of accelerating the acquisition of
26 combustion turbine resources, while continuing to purchase
27 peaking capacity.

1 **II. ACQUISITION OF THE COMBUSTION TURBINES**

2 **Q. Have the combustion turbines been purchased?**

3 A. Yes. LG&E Energy Corp.'s subsidiary LG&E Capital Corp. has
4 executed a contract with Asea Brown Boveri (ABB) to
5 purchase two 164 MW simple-cycle combustion turbine units.
6 LG&E and KU notified the Commission and the Attorney
7 General on October 30, 1998 that LG&E Capital Corp. had
8 signed a purchase option with ABB. Since that time, the
9 Companies have determined that acquisition of the
10 combustion turbines is the best generation resource to meet
11 their combined needs.

12 **Q. Who is constructing the two combustion turbines?**

13 A. LG&E Capital Corp. has entered into a construction contract
14 with Overland Contracting, Inc., a subsidiary of Black &
15 Veatch, for construction of the turbines, consistent with
16 the October 30, 1998 letter to the Commission. The
17 turbines are presently under construction at the E.W. Brown
18 Generating Station in Central, Kentucky.

19 **Q. Who will operate and maintain the two turbines?**

20 A. KU will. KU can operate and maintain the new units with no
21 increase in personnel at the Brown facility. If the
22 Commission determines that LG&E Capital Corp. should
23 continue to own the turbines by denying our requested
24 certificate in this case, LG&E Capital Corp. will operate

1 the turbines consistent with LG&E Energy Corp.'s Corporate
2 Policies and Guidelines for InterCompany Transactions.

3 **Q. Did LG&E and KU issue a request for proposals from**
4 **combustion turbine vendors and purchased power sellers in**
5 **August and September 1998?**

6 A. No. Under the circumstances, the use of a formal request
7 for proposals (RFP) was not a reasonable method for
8 determining the options in the market existed at that time,
9 for meeting the resource needs of the Companies. Mr.
10 Bellar's testimony describes the advice we received from
11 our outside engineering contractor on the availability of
12 combustion turbines. Mr. Kasey's testimony describes the
13 volatile power market conditions at the time. Based on
14 this knowledge and information, we determined that the use
15 of a formal solicitation would not produce useful or
16 reasonable information and would cause us to lose the
17 opportunity to purchase the turbines before the price rose
18 further or the machines simply became unavailable.

19 **Q. Will LG&E and KU issue requests for proposals in future**
20 **resource assessments?**

21 A. Yes. In fact, the Companies have issued a request for
22 purchased power for the summers of 1999 - 2002. The
23 responses are due by the middle of February; and the
24 results of the solicitation relating to the summer of 1999

1 will be filed with the Commission in March.

2 The Companies will continue to use the request for
3 proposals method of solicitation in the future where
4 circumstances make the use of such RFPs reasonable and the
5 RFPs will provide useful and timely information.

6 **Q. If Commission grants the Certificate of Convenience and**
7 **Necessity requested by LG&E and KU, will the Companies own**
8 **the combustion turbines jointly?**

9 A. Yes. If the Commission grants the certificate requested by
10 LG&E and KU, LG&E Capital Corp. will transfer title of
11 ownership of the machines to LG&E and KU at cost. This
12 will be in compliance with LG&E Energy Corp.'s Corporate
13 Policies and Guidelines for InterCompany Transactions.
14 Pursuant to the Power Supply System Agreement between KU
15 and LG&E, the Companies' Operating Committee met and
16 approved the percentage of ownership that is recommended in
17 the Resource Assessment, which is KU-62 percent, and LG&E-
18 38 percent. As a result, the Companies will own their
19 proportionate share of these joint system generation assets
20 pursuant to the Power Supply System Agreement to meet the
21 load requirements of their system customers.

22 **Q. What will happen to the combustion turbines if the**
23 **Commission does not grant the Certificate of Convenience**
24 **and Necessity requested by LG&E and KU?**

1 A. LG&E Capital Corp. will continue to own the two machines.
2 LG&E Capital Corp. will operate and maintain the two
3 machines pursuant to a service agreement and consistent
4 with LG&E Energy Corp.'s Corporate Policies and Guidelines
5 for InterCompany Transactions. LG&E Capital Corp. will use
6 the two machines for its own business plans as an exempt
7 wholesale generator under the Federal Power Act. However,
8 consistent with the Federal Energy Regulatory Commission's
9 policy, KU and LG&E will not purchase and LG&E Capital
10 Corp. or other non-utility affiliates will not sell to LG&E
11 and KU any energy produced by the two combustion turbines.

12 **Q. If LG&E Capital Corp. continues to own the two combustion**
13 **turbines and does not sell power to LG&E or KU, how will**
14 **the Companies meet the capacity needs projected for summer**
15 **1999 and beyond?**

16 A. Both Companies, and their customers, will be dependent on
17 the availability of other generating units, the weather and
18 the energy market. If we do not experience significant
19 unforeseen unit unavailability, the weather is typical and
20 no power companies in the Midwest experience generation or
21 transmission problems, there may be enough energy available
22 to meet projected needs. However, another unusually hot
23 summer will likely cause significant and potentially
24 extreme volatility in wholesale power prices.

1 In sum, the purchase of the combustion turbines is the
2 most reasonable and cost-effective option available to meet
3 the Companies' needs for adequate power to provide reliable
4 service. The Companies will be able to reduce the risk of
5 relying on purchased power and secure generation resources
6 at a time when the demand for and price of combustion
7 turbines is expected to continue to rise.

8 **III. FINANCIAL INFORMATION AND SOURCE OF FUNDS**

9 **Q. How do the Companies plan to finance the acquisition of the**
10 **two combustion turbines?**

11 **A.** The Companies plan to use a combination of internal and
12 external financing, as set out in Exhibit 5 to the
13 application.

14 **IV. IMPACT ON CUSTOMERS**

15 **Q. Will this transaction have any adverse impact on customers**
16 **of LG&E and KU?**

17 **A.** No. Financing of this transaction, and the potential
18 transfer of the two combustion turbines from LG&E Capital
19 Corp. to LG&E and KU following the granting of the
20 Certificate of Convenience and Necessity, will not result
21 in any adverse impact on customers. This is so because
22 during construction, LG&E Capital will absorb any financial
23 penalties if the purchase contract with ABB is canceled or
24 the project is otherwise delayed. Neither LG&E nor KU, nor

1 their customers, will be exposed to any financial risk from
2 penalties connected with the contract. In addition, the
3 transfer of the combustion turbines from LG&E Capital Corp.
4 to KU and LG&E will be at cost.

5 **Q. Will Commission approval of this application have any**
6 **immediate impact on customers' rates?**

7 A. No. Under the rate cap commitment made by the Companies at
8 the time of the merger of KU Energy Corporation and LG&E
9 Energy Corp., existing base rates for both companies are
10 capped until May of 2003. In addition, the granting of a
11 Certificate of Public Convenience and Necessity does not
12 determine rate-making treatment or cost allocation.

13 **Q. Are the Companies requesting that the Commission issue a**
14 **Certificate of Environmental Compatibility?**

15 A. No. The Commission granted a Certificate of Environmental
16 Compatibility in 1991 for the entire Brown site, including
17 eight turbines. There are presently four combustion
18 turbines at Brown, and the two under construction will
19 bring the total to six machines. Therefore, an additional
20 Certificate of Environmental Compatibility is not
21 required. This information, and the 1991 Certificate, are
22 being submitted with the application.

23 **Q. What action should the Commission take regarding this**
24 **application?**

1 A. The Commission should approve the Companies' application
2 for Certificates of Public Convenience and Necessity for
3 the acquisition of two 164 megawatt combustion turbines.

4 **Q. Does this conclude your testimony?**

5 A. Yes, it does.

VERIFICATION

STATE OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **Ronald L. Willhite**, being duly sworn, deposes and says he is Vice President of Regulatory Affairs for Louisville Gas & Electric Company and Kentucky Utilities Company, that he has personal knowledge of the matters set forth in the foregoing testimony, and that the answers contained therein are true and correct to the best of his information, knowledge and belief.

Ronald L. Willhite
RONALD L. WILLHITE

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 11th day of February, 1999.

Sammy J. Ely (SEAL)
Notary Public

My Commission Expires:

November 9, 2002

APPENDIX A

RONALD L. WILLHITE

In December 1969, I received a Bachelor's degree in electric engineering from the University of Kentucky. Subsequently, I have taken both undergraduate and graduate level courses in accounting and economics and have participated in Company-sponsored management and computer courses.

In September 1968, I joined Kentucky Utilities Company on a part-time basis as a student engineer in the Company's System Planning Department. In December 1969, upon receiving my B.S.E.E., I became a Technical Engineer-System Planning. In May 1973, I joined KU's Rates, Contracts and Franchises Department. In September 1981, I was promoted to Director of Cost Analysis and Load Research, and in January, 1982 to Director of Rates and Economic Research. In April 1987, I became Director of Rates and Rate Research. In December of 1992, I became the Director of Regulation. In 1997, I assumed the position of Vice President of Regulation and Economic Planning. In May 1998, I assumed the responsibility of Vice President of Regulatory Affairs for Louisville Gas & Electric Company and Kentucky Utilities Company.

I am a registered professional engineer and a member of the National Society of Professional Engineers. In the past, I have taught the Cost of Service portion of the Rate Fundamentals School sponsored by the Edison Electric Institute.

BEFORE THE
KENTUCKY PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS & ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. _____
AND NECESSITY FOR THE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

TESTIMONY OF

H. BRUCE SAUER
MANAGER -- FORECASTING & MARKETING ANALYSIS
LOUISVILLE GAS AND ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

1 **Q. Please state your name and business address.**

2 A. My name is H. Bruce Sauer. My business address is 220 West
3 Main Street, Louisville, Kentucky 40202.

4 **Q. What is your position?**

5 A. I am the Manager - Forecasting and Market Analysis for
6 Louisville Gas and Electric Company ("LG&E") and Kentucky
7 Utilities Company ("KU").

8 **Q. Please describe your work experience.**

9 A. I started with KU in 1987 and have held various positions
10 involving forecasting. I have served in my present
11 position since the merger of LG&E Energy Corporation and KU
12 Energy Corporation became effective May 4, 1998. In my
13 present position, I am responsible for the load forecasting
14 of both LG&E and KU. A complete statement of my education
15 and work responsibilities is attached to my testimony as
16 Appendix A.

17 **Q. What is the purpose of your testimony?**

18 A. The purpose of my testimony is to present the 1998 joint
19 load forecast. Exhibit HBS-1 shows a table containing the
20 joint energy and demand forecast.

21 **Q. Do you have an exhibit which shows a summary of the 1998
22 joint load forecast?**

23 A. Yes. Exhibit HBS-2 contains a summary of the 1998 joint
24 load forecast.

1 Q. Please briefly describe how LG&E and KU prepare their joint
2 forecast future energy sales and demands.

3 A. Forecasting future energy sales and demand is essential for
4 planning and control of the operations of both companies
5 and their resource assessments. These forecasts become the
6 basis for formulating annual operating budgets, financial
7 forecasts and decisions concerning the construction or
8 acquisition of facilities.

9 The energy forecast was developed separately for LG&E
10 and KU. While LG&E's forecast addresses retail and
11 contracted wholesale sales, KU's energy forecast addresses
12 three basic jurisdictional groups: (1) retail sales in
13 Kentucky, (2) retail sales in Virginia, and (3) wholesale
14 sales to municipally-owned and other utilities. The
15 forecasts are disaggregated by class such as residential,
16 commercial and industrial sales. The number of customers
17 as well as the kilowatt-hours are forecasted. The primary
18 techniques utilized include econometric and end-use
19 modeling.

20 Separate demand forecasts are also generated for each
21 operating company. LG&E utilizes a regression-based
22 approach, while KU utilizes the Hourly Electric Load Model
23 (HELM). The two demand forecasts are combined within the
24 HELM model to create a joint demand forecast. A detailed

1 textual description of the methodologies employed in the
2 generation of the energy and demand forecasts is attached
3 as Exhibit HBS-3.

4 **Q. Please summarize the results of the 1998 joint load**
5 **forecast.**

6 A. Exhibit HBS-2 contains the summary of the energy and demand
7 forecast. The energy forecast shows 29,257 GWH sales in
8 1999. The demand forecast shows a seasonal peak load for
9 the winter of 1998/99 of 5,397 megawatts and 6,132
10 megawatts for the 1999 summer seasonal peak load.

11 The demand forecast also shows the summer season to be
12 the peak season for each year throughout the next 15 year
13 period. This is so primarily because of the dominance of
14 gas heating in the LG&E service territory and continued
15 growth in summer load for both utilities.

16 **Q. In your professional opinion, are the methods and results**
17 **of the forecast reasonable?**

18 A. Yes. Based upon my experience and training, the results of
19 this forecast are reasonable and show a need for additional
20 resources beginning in the summer of 1999. The methods are
21 generally accepted and consistent with established
22 practices and principles in this area. Based upon the 1998
23 joint energy and demand forecast, LG&E and KU will continue
24 to experience growth in their peak demands.

1 Q. What is your recommendation to the Commission in this case?

2 A. The Commission should accept the 1998 joint load forecast
3 as evidence of expected load requirements that LG&E and KU
4 will need to serve during this 15 year period.

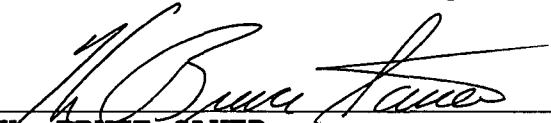
5 Q. Does this conclude your testimony?

6 A. Yes, it does.

VERIFICATION

STATE OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

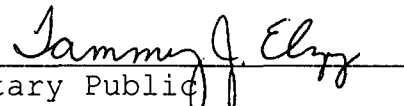
The undersigned, **H. Bruce Sauer**, being duly sworn, deposes and says that he is the forecasting and market analysis manager for Louisville Gas & Electric Company and Kentucky Utilities Company, he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge and belief.



H. BRUCE SAUER

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 11th day of February, 1999.

(SEAL)



Notary Public

My Commission Expires:

November 9, 2002

APPENDIX A
H. BRUCE SAUER

In May 1976, I received a Bachelors degree in Business Administration from Brescia College. In December 1979 I received a Master of Science degree in Economics from the University of Kentucky, and in May 1988 I received a Master of Business Administration degree from Xavier University. Subsequently I have taken further coursework in economics and have participated in Company sponsored management and computer courses.

From October 1978 to November 1982, I was employed by the Commonwealth of Kentucky as an Energy Specialist and Cabinet Research Advisor. From November 1982 to February 1986, I was Assistant to the Commissioner in the Department of Energy Production and Utilization. In February 1986 I joined Island Creek Corporation as a Market Analyst.

In January 1987, I joined Kentucky Utilities Company as a Senior Rate Analyst in the Company's Rates and Economic Research Department. In June 1988, I was promoted to Manager of Energy Forecasting. In December 1992, I was promoted to Manager of Forecasting and Research. In May 1998, I was promoted to Manager of Forecasting and Market Analysis for Louisville Gas and Electric Company and Kentucky Utilities Company.

I am a member and served as 1997 President of the Kentucky Economics Association and also a member and 1997 President of the Electric Utility Forecaster's Forum.

EXHIBIT HBS-1

1999-2013 JOINT ENERGY AND PEAK DEMAND FORECAST
LOUISVILLE GAS & ELECTRIC
KENTUCKY UTILITIES

Year	Joint Company Sales (MWH)	Growth Rate	Summer Peak (MW)	Growth Rate
1999	29,257,208	2.31%	6,132	2.87%*
2000	29,904,269	2.21%	6,313	2.95%
2001	30,550,585	2.16%	6,427	1.81%
2002	31,183,337	2.07%	6,552	1.94%
2003	31,834,471	2.09%	6,689	2.09%
2004	32,488,654	2.05%	6,849	2.39%
2005	33,126,621	1.96%	6,995	2.13%
2006	33,727,092	1.81%	7,127	1.89%
2007	34,343,797	1.83%	7,258	1.84%
2008	34,966,385	1.81%	7,391	1.83%
2009	35,578,544	1.75%	7,534	1.93%
2010	36,202,152	1.75%	7,696	2.15%
2011	36,774,069	1.58%	7,852	2.03%
2012	37,349,125	1.56%	7,970	1.50%
2013	37,930,933	1.56%	8,090	1.51%

* The 1999 demand growth rate shown reflects the adjustment of 1998 for LG&E estimated interruptible load.

EXHIBIT HBS-2

LG&E/KU

1999-2013 ELECTRIC ENERGY AND DEMAND FORECAST

This report documents the electric energy and demand forecast for Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU) for the 1999 – 2013 time period. Forecasting future energy and demand is essential for the planning and control of the Company's operations. The forecast becomes the basis for decisions regarding construction of facilities, such as power plants, transmission and distribution lines, and substations, all of which are vital to providing reliable service. Vital as the information is, the energy and demand forecast remains an estimate. The desired outcome of the forecasting process is a reasonable estimate upon which strategies and goals can logically be based so that the Company's mission of providing adequate and reliable electric service to its customers at the lowest reasonable cost can be attained.

This forecast has been developed by combining the results of the energy and demand forecasts for LG&E and KU. For the joint company energy outlook, the individual operating company forecasts are additive. After each operating company's demand forecast was developed, they were also combined. Due to demand being met on a joint company dispatch basis, some slight non-coincidence in forecasted peaks leads to the two individual demand forecasts not being completely additive, but rather a small reduction occurs in the combined peak demands. This will be discussed in Section III of this report.

I. ECONOMIC OVERVIEW OF THE LG&E SERVICE TERRITORY

A continuous but slower pattern of growth is expected for the LG&E service area population and the local economy over the next five years. Construction growth has decelerated from the rapid growth attained in 1997, but this industry remains a major driver of growth. The transportation industry has been another source of growth to the area over the last several years, with United Parcel Service providing large direct employment gains and attracting relocating firms that rely on close proximity to transportation and distribution services. Gross Metro Product (GMP) grew 4.1% in 1997, the best performance since 1994, and average 2.8% growth over the last five years.

The labor market has become extremely tight, with population growth of less than .5% over the last year. Net migration to Louisville is much lower than other southern metro areas of comparable size. This trend is expected to constrain Louisville's growth rate to slightly below average over the near term.

Over the next five years, the service area population is expected to increase at an average annual growth rate of .5% compared to a national average of .8%. Assuming no major economic disruption, GMP and real per capita personal income will grow at an average annual rate of 1.8% and 2.0% respectively. Total employment in the Louisville metropolitan area is anticipated to increase by 1.0% per year during the five-year period of 1998-2203.

LG&E Electric Sales

During the last five years (1993-1998), LG&E's weather-normalized native electric energy sales grew from 9,679 GWH to 10,807 GWH, at an average annual compound growth rate of 2.2%. Assuming a constant level of degree-days based on a twenty-year average, retail electric sales (GWH) for 1998 - 2003 are projected to grow at an average annual rate of 1.9%. For 1999, sales are expected to grow 1.8% to 10,999 GWH, with further growth of 2.1% in 2000, 1.9% in 2001, 1.8% in 2002, and 1.7% in 2003.

Table 1 presents the five-year electricity sales forecast outlook for LG&E by class. With continuous growth of service and trade industries in the Louisville MSA, the small and large commercial customer classes are expected to be the fastest growing sectors.

**TABLE 1
LG&E RETAIL ELECTRIC SALES FORECAST
1998-2003
(MWH)**

	1998*	2003	ANNUAL G.R
TOTAL	10,807,106	11,856,019	1.9%
RESIDENTIAL	3,490,760	3,840,607	1.9%
SMALL COMMERCIAL	1,139,371	1,325,906	3.1%
LARGE COMMERCIAL	1,948,360	2,178,278	2.3%
INDUSTRIAL	3,097,202	3,322,525	1.4%
PUBLIC AUTHORITY	1,062,718	1,112,263	.9%
STREET LIGHTING	68,695	76,462	2.2%

* Weather normalized actuals calculated on "as-used" basis.

Table 2 presents a fifteen-year outlook for total LG&E sales and output. From 2003 through 2013, sales and output are predicted to grow at a compound average annual rate of 1.5%.

TABLE 2
LG&E SALES AND OUTPUT
FORECAST (MWH)
1998-2013

Year	LG&E Sales	% Sales Growth	LG&E Output	% Output Growth
1998*	10,807,106		11,454,335	
1999	10,999,281	1.78%	11,619,640	1.14%
2000	11,224,947	2.05%	11,858,034	2.05%
2001	11,443,252	1.94%	12,088,651	1.94%
2002	11,653,307	1.84%	12,310,554	1.84%
2003	11,856,019	1.74%	12,524,698	1.74%
2004	12,037,608	1.53%	12,716,529	1.53%
2005	12,223,420	1.54%	12,912,821	1.54%
2006	12,413,345	1.55%	13,113,457	1.55%
2007	12,610,317	1.59%	13,321,539	1.59%
2008	12,811,822	1.60%	13,534,409	1.60%
2009	13,003,546	1.50%	13,736,946	1.50%
2010	13,206,637	1.56%	13,951,491	1.56%
2011	13,396,075	1.43%	14,151,614	1.43%
2012	13,572,762	1.32%	14,338,266	1.32%
2013	13,751,502	1.32%	14,527,086	1.32%

* Weather normalized actuals calculated on "as-used" basis.

From 1993-1998, weather-normalized peak demand has increased from 2,263 MW to 2,297 MW. The 1998 estimate reflects reductions for Interruptible Rate customers. Table 3 presents the peak demand forecasts for LG&E for 1998 through 2013. The forecast assumes interruption of the Interruptible Rate customers for every annual peak. The LG&E demand forecast for 1999 calls for a peak demand of 2,402 MW. Demand is predicted to grow from 2,402 MW in 1999 to 2,624 MW in 2003, at an annual average rate of 2.2%. Over the forecast period, LG&E remains a summer peaking utility, and the gap between summer and winter peaks continues to grow. From 2003 to 2013, peak demand is expected to grow at a compound average annual rate of 1.9%.

TABLE 3
1998-2013 LG&E PEAK DEMANDS

Year	Summer Peak	Growth Rate
1999	2,402	4.57%*
2000	2,483	3.37%
2001	2,530	1.89%
2002	2,576	1.82%
2003	2,624	1.86%
2004	2,670	1.75%
2005	2,715	1.69%
2006	2,767	1.92%
2007	2,822	1.99%
2008	2,883	2.16%
2009	2,938	1.91%
2010	3,001	2.14%
2011	3,062	2.03%
2012	3,110	1.57%
2013	3,163	1.70%

Each Summer peak value
should be increased by
2 MW

0.70%

* After 1998 adjustment for estimated interruptible load.

II. ECONOMIC OVERVIEW OF KU SERVICE TERRITORY

The KU service territory economy is predicted to continue its recent strong performance relative to the national economy, with growth in industrial value added showing particular strength. Output is forecast to grow on average by 3.8% per year for the five-year period of 1999 to 2003. This is slightly higher than the 3.6% outlook in the 1998 Energy Forecast and is significantly better than the 2.2% per year average outlook for national real gross domestic product from Data Resources International (DRI). Commercial employment is forecast to grow on average by 2.3% per year over the five-year period, up from a 2.0% growth rate in the 1998 Energy Forecast. In contrast, commercial employment nationally is projected to increase at an average annual rate of 1.6% over the same period. Real total personal income in the KU service territory is forecast to increase an average 2.2% per year compared to 1.5% nationally.

The rate of population growth in the service territory is forecasted to match population forecasts for the United States over the next five years. This is a strong performance for a state where population growth has often lagged growth rates nationally. Annual population growth is forecast to average .8% over the next five years in the KU service territory. The number of households is forecast to increase by 1.7% per year in the service territory.

As was the case with the Louisville MSA, KU's service territory economy is subject to a national economic downturn. Labor shortages, deterioration in Asian export markets, and the dollar's appreciation could all play a factor.

KU SALES

During the last five years (1993-1998), KU's weather-normalized native electric energy sales grew from 15,253 GWH to 17,791 GWH, at an average annual rate of 2.8%. Assuming a constant level of degree-days based on a twenty-year average, KU electricity sales (GWH) for 1998 to 2003 are projected to grow at an average annual rate of 2.3%. For 1999, sales are expected to grow 2.6% to 18,258 GWH, with further growth of 2.3% in 2000, 2.3% in 2001, 2.2% in 2002, and 2.3% in 2003.

Table 4 presents the five-year electricity sales forecast outlook for KU by class. The table emphasizes a high level of balance in growth between the various sectors over the next five years. The key contributing classes to the increase in the forecast relative to last years forecast are the Industrial, Commercial, and Large Industrial sectors. These increases offset decreases in the Residential sector forecast over the five-year period.

**TABLE 4
KU ELECTRIC SALES FORECAST
1998-2003
(MWH)**

	1998*	2003	ANNUAL G.R.
TOTAL	17,790,748	19,978,452	2.3%
RESIDENTIAL	5,025,152	5,627,931	2.3%
COMMERCIAL	4,830,338	5,376,925	2.2%
INDUSTRIAL	5,233,286	5,911,938	2.5%
LIGHTING	101,670	104,325	.5%
VIRGINIA	822,574	944,179	2.8%
WHOLESALE	1,777,729	2,013,155	2.5%

* Weather-normalized actuals on an "as-billed" basis

Industrial sales provide the biggest increase in the outlook over the first three years. The outlook for value added output has been increased, and expected sales to all four of KU's individually forecasted customers have been increased. Mine Power sales are reduced despite expected increases in tonnage served due to increased overall efficiency of electricity usage.

Increases in both the customer forecast and the usage per customer contribute to the increased outlook for the Commercial sector. Continuing residential growth increases the Commercial customer forecast, whereas recent data and the outlook for commercial employment drive the increased usage per customer forecast. There are three reasons why the commercial employment forecast was significantly increased.

- 1) Higher commercial employment levels were achieved in 1996 and 1997 than had previously been predicted, so the starting point is higher;
- 2) the national forecast for commercial employment increased somewhat since last year; and
- 3) revised equations for wage income growth in the state model lead to more rapid forecasts for wage and salary growth, which in turn leads to greater commercial employment.

The primary reason for the downward adjustment in Residential sector sales is a reduced outlook for usage per customer throughout the five-year period. Initially, a downward correction to the starting point for Residential customers contributes to the sales forecast reduction, but the overall outlook for Residential customers has improved given the expected economic performance in the KU service territory and the assumption that people follow jobs.

Table 5 presents the fifteen year outlook for KU sales and output. From 2003 through 2013, sales and output are predicted to grow at a compound average annual rate of 1.93%. In the KU forecasting process, output is generated in the HELM model. Leap years exhibit a slight growth rate difference, but the compound average growth is the same.

TABLE 5
KU SALES AND OUTPUT
FORECAST (MWH)
1998-2013

Year	KU Sales	% Sales Growth	KU Generation	% Generation Growth
1998	17,790,748		18,846,410	
1999	18,257,927	2.63%	19,341,000	2.62%
2000	18,679,322	2.31%	19,843,000	2.60%
2001	19,107,333	2.29%	20,243,000	2.02%
2002	19,530,030	2.21%	20,692,000	2.22%
2003	19,978,452	2.30%	21,169,000	2.31%
2004	20,451,046	2.37%	21,730,000	2.65%
2005	20,903,201	2.21%	22,151,000	1.94%
2006	21,313,747	1.96%	22,586,000	1.96%
2007	21,733,480	1.97%	23,031,000	1.97%
2008	22,154,563	1.94%	23,542,000	2.22%
2009	22,574,998	1.90%	23,924,000	1.62%
2010	22,995,515	1.86%	24,370,000	1.86%
2011	23,377,994	1.66%	24,776,000	1.67%
2012	23,776,363	1.70%	25,267,000	1.98%
2013	24,179,431	1.70%	25,632,000	1.44%

KU Demand

Table 6 presents the seasonal peak demand forecasts for KU for 1999 through 2013. KU is examined on a seasonal basis due to the proximity of the winter and summer peaks. From 1993-1998, weather normalized demand grew from 3,126 MW to 3,664 MW, at an average annual rate of 3.2%. Weather normalized peak demand for KU will grow from 1998 to 2003 at an average annual growth rate of 2.2%. By 2013, peak demand is predicted to reach 4,941 MW, with growth from 2003 to 2013 averaging 1.9%. The system load factor generally increases over the period due to proportionally more sales occurring in the winter. The winter peak will grow from a predicted 3,662 MW for the 1998/1999 winter to 4,152 MW for the 2003/2004 winter, at an average growth rate of 2.5%. Over the course of the fifteen-year forecast horizon, the gap between winter and summer peaks is expected to narrow and by the winter of 2007/2008, KU is anticipated to be a winter peaking utility. This shift is primarily due to the growing importance of residential electric space heating.

TABLE 6
1999-2013 KU Seasonal Peak Demands (MW)

Year	Winter Peak	Growth Rate	Year	Summer Peak	Growth Rate
1998/99	3662	4.12%	1999	3743	2.16%
1999/00	3753	2.48%	2000	3843	2.67%
2000/01	3836	2.21%	2001	3911	1.77%
2001/02	3933	2.53%	2002	3988	1.97%
2002/03	4033	2.54%	2003	4079	2.28%
2003/04	4152	2.95%	2004	4194	2.82%
2004/05	4253	2.43%	2005	4295	2.41%
2005/06	4343	2.12%	2006	4375	1.86%
2006/07	4424	1.87%	2007	4451	1.74%
2007/08	4522	2.22%	2008	4522	1.60%
2008/09	4625	2.28%	2009	4611	1.97%
2009/10	4732	2.31%	2010	4709	2.13%
2010/11	4810	1.65%	2011	4806	2.06%
2011/12	4898	1.83%	2012	4875	1.44%
2012/13	4974	1.55%	2013	4941	1.35%

III. Joint LG&E/KU Energy and Demand Forecast

Table 7 presents the combined sales and output forecast. The combined system energy forecast starting in 1999 is 29,257,208 MWH, a 2.8% increase over predicted 1998. Through 2003, the compound average annual growth rate is 2.2%, with sales growing to 31,834,471 MWH by 2003. From 2003 to 2013, joint sales are forecast to grow to 37,930,133 GWH at an average annual rate of 1.8%.

Table 8 presents the peak and seasonal demand forecast for the combined LG&E and KU systems. Due to some slight non-coincidence, the individual company peaks are not additive in arriving at the combined demand forecast. The combined system forecast starting in 1999 calls for a peak demand of 6,132 MW. From 1998 through 2003, the compound average annual growth rate is 2.3%, and the peak demand is expected to increase to 6,689 MW. The combined system remains solidly a summer peaking system throughout the forecast. By 2013, the peak demand is expected to reach 8,090 MW. From 2003 to 2013, the compound average annual growth rate for peak demand is expected to be 1.9%.

**TABLE 7
1998-2013 MERGED COMPANY SALES AND OUTPUT FORECAST**

Year	Joint Company Sales	Growth Rate	Joint Company Output	Growth Rate
1998	28,597,854		30,300,745	
1999	29,257,208	2.31%	30,960,640	2.18%
2000	29,904,269	2.21%	31,701,034	2.39%
2001	30,550,585	2.16%	32,331,651	1.99%
2002	31,183,337	2.07%	33,002,554	2.08%
2003	31,834,471	2.09%	33,693,698	2.09%
2004	32,488,654	2.05%	34,446,529	2.23%
2005	33,126,621	1.96%	35,063,821	1.79%
2006	33,727,092	1.81%	35,699,457	1.81%
2007	34,343,797	1.83%	36,352,539	1.83%
2008	34,966,385	1.81%	37,076,409	1.99%
2009	35,578,544	1.75%	37,660,946	1.58%
2010	36,202,152	1.75%	38,321,491	1.75%
2011	36,774,069	1.58%	38,927,614	1.58%
2012	37,349,125	1.56%	39,605,266	1.74%
2013	37,930,933	1.56%	40,159,086	1.40%

TABLE 8
1999-2013 MERGED COMPANY PEAK DEMANDS (MW)

Year	Summer Peak	Growth Rate
1999	6,132	2.87%*
2000	6,313	2.95%
2001	6,427	1.81%
2002	6,552	1.94%
2003	6,689	2.09%
2004	6,849	2.39%
2005	6,995	2.13%
2006	7,127	1.89%
2007	7,258	1.84%
2008	7,391	1.83%
2009	7,534	1.93%
2010	7,696	2.15%
2011	7,852	2.03%
2012	7,970	1.50%
2013	8,090	1.51%

*0.7%
Corrected*

* Reflects 1998 adjustment for estimated interruptible load

EXHIBIT HBS-3

ENERGY & DEMAND FORECASTING METHODOLOGIES LOUISVILLE GAS AND ELECTRIC COMPANY KENTUCKY UTILITIES COMPANY

As a consequence of the merger of Louisville Gas and Electric Company (LG&E) and Kentucky Utilities Company (KU), which became effective May 4th, 1998, the forecasting staffs of the two operating companies have been combined. It was determined that due to the timing of the merger, the best approach for generating the 1999-2013 forecast was for each operating company to utilize its own forecast methodologies. During the next year, opportunities to standardize data sources and methodologies will be examined. This exercise will be conducted for the purpose of increasing efficiency and identifying "best practices", recognizing that the separate processes have served each company well and that some unique aspects may be retained.

This report provides summary documentation for the methodologies employed as of calendar year 1998 by LG&E and KU to forecast electricity sales and demand. Each company's methodologies will be discussed, with the only merger-affected aspect being the joint forecasting of system demand after demand forecasts were generated for each company's territories.

LOUISVILLE GAS AND ELECTRIC

Data Sets

The regional economic and demographic data and forecasts were provided by the School of Economics and Public Affairs of the University of Louisville, by Regional Financial Associates (RFA), and by Woods and Poole Economics. Inputs for national economic and demographic variables were provided by the WEFA Group. The University of Louisville forecasts are generated using a shift-share analysis of Louisville area wage and salary job growth over the last 37 years. This information is used along with forecasts of the number of wage and salary jobs by industry for the United States provided by the WEFA Group to produce a forecast of Louisville's growth rate for wage and salary jobs by industry. Historical relationships are then used to construct a forecast of all jobs, including the self-employed. Next, earnings per job in each industry are modeled and forecast, based on trend relationships between the Louisville area and national earnings. This becomes the foundation for a forecast of the personal income – wages, salaries, dividends, interest, rent, and transfer payments, of Louisville area residents. Finally, county-level shares of economic and demographic activity are

examined, county-level populations are forecast, and forecasts generated for the key economic variables for each of the 13 counties included in the analysis¹.

Regional weather data are compiled from the National Oceanic and Atmospheric Administration. (NOAA). An average daily temperature was calculated using the hourly temperatures for the day. These daily average temperatures were utilized to calculate heating and cooling degree days. *LG&E* uses 65°F as the base temperature for both computations. NOAA also uses 65°F as the base temperature to calculate heating and cooling degree days. Weather variables are calculated on a billing cycle basis. A twenty-year rolling average is used for estimation of normal weather.

The time periods of the historical data used for analysis were 1993 – 1997 for the short-term energy sales forecast, 1981 – 1997 for the long-term energy sales forecasts, 1973 – 1997 for the peak demand forecast, and 1970 to 1997 for the customer forecast. Data prior to 1981 for the long term energy models was not used due to the moratorium on natural gas service which lasted from 1971 to 1980.

The composite rate of saturation for residential air conditioners is a key explanatory variable for residential energy sales. The history of the composite saturation rate was developed from appliance stock data collected through *LG&E*'s biennial survey of residential customers, which started in 1986. The 100 percent saturation of air conditioning is defined as the situation in which every residential customer owns a central air conditioner. A room air conditioner was given 29% of the weight put on a central air conditioner when calculating the composite saturation rates from the residential survey data, based on information provided by the American Refrigeration Institute on capacities of room air conditioners and central air conditioners shipped to dealers in recent years. Once several data points were established from the survey information, blank spots in the historical data series and predicted values for future years were filled in by a curve estimation technique. The curve assumes a positive S-shaped growth pattern and is mathematically represented by a double exponential function of time.

A reverse S-shaped decreasing pattern was assumed for the decreasing number of persons per residential customer count. The number of persons per residential customer count has been continuously declining from 3.32 in 1970 to 2.50 by 1990. This trend conforms to the 1990 Census report on the reduced size of households. However, the rate of decrease in household size has been declining in recent years. The results of the regression analysis reveal that the declining trend in number of persons per residential customer count is similar to a negative S-shaped pattern. The estimated equation was then used to predict the number of persons per residential customer count from the population forecast for the service area.

¹ The 13 counties are Jefferson, Meade, Hardin, Bullitt, Nelson, Oldham, Spencer, Shelby and Henry Counties in Kentucky and Harrison, Floyd, Clark and Scott Counties in Indiana. As such, the modeling is performed for a local economy, including the seven Louisville Metropolitan Statistical Area (MSA) counties and six counties surrounding the Louisville MSA, not solely for the *LG&E* service territory counties.

Methodologies

Two types of econometric models were developed and complementarily used for energy sales forecasting: 1) a short-term forecasting model and 2) a long-term forecasting model. Both the short and long-term forecasting models were designed to produce energy sales forecasts by service class. Adopting the neoclassical economic theory of stock adjustment, the short-term model assumes a variable rate of utilization but a fixed stock of electric appliances, while the long-term model allows both a variable rate of utilization and a variable stock of electric appliances. Therefore, weather, price and other seasonal and economic variables which determine the utilization rate of appliance stock are considered to be dominant variables to explain the short-run formation of electric energy consumption. On the other hand, the long-run model includes not only the variables considered in the short-run model but also levels of appliance stock and/or economic and demographic variables which affect both levels of appliance stock and their utilization rates.

The short-term energy sales forecasts were developed on the basis of the monthly historical data for January 1993 - December 1997. The annual data for 1981-1997 were used to develop the long-term energy sales forecasts. The short-term model equations take linear functional forms while the long-term model equations are in double-logarithmic functional forms. The final model specifications were chosen over many other alternative specifications whose estimated coefficients were in conflict with economic theories or were inferior in statistical fitness. An econometric PC software package called "E-VIEWS" was utilized for estimating the model coefficients and conducting statistical robustness tests.

The short-term energy sales models were used to produce the energy requirement projections for 1998-2003. The energy sales projections for the years after 2003 were produced by applying the future annual growth rates implied by the long-term model forecast to the final forecast of energy sales by class in 2003.

Residential and Small Commercial Sectors

Residential and small commercial (or general service) energy sales forecasting models were disaggregated into equations for non-weather-sensitive (or base) energy sales and weather-sensitive energy sales. The weather-sensitive energy sales models were divided into space-heating energy usage per customer and air-conditioning energy usage per customer equations. In the Residential long-term model, the space-heating energy sales were further disaggregated into all-electric space-heating energy sales and regular (or non-all-electric) space-heating energy sales. The primary use of the regular space-heating energy is for fan blowing of gas furnaces. In the Small Commercial short-term model, electric space-heating energy sales served under a special rate were separately modeled from non-electric space-heating energy sales.

In the short-term models, monthly sales data were used to disaggregate total class sales into base usage and weather-sensitive usage. Each classes' base KWH sales, by

month and year were determined by taking an average daily usage of five minimum-usage days from *LG&E's* hourly load research samples. This average minimum daily usage was then multiplied by the number of billing days in the month. For commercial energy sales modeling, base load sales on a weekend day and a week day were separately estimated. After subtracting the base usage and the separately-metered outdoor lighting and electric water heating sales from monthly total sales, the remainder was defined as space-heating energy sales if the month was in the winter season, or air-conditioning sales if the month belonged to the summer season, or a combination of heating and cooling energy sales if the month fell during the swing seasons. The winter season covers November through April, the summer season includes June through September and the swing seasons are May and October. Primary drivers of the short-term residential and small commercial energy sales are HDD, CDD, monthly variation factors which allow weather variable coefficients and intercept terms to vary monthly, and trend variables. Monthly variations in weather variable coefficients and intercept terms are reflected and estimated by combining the weather variables and intercept terms with monthly binary interactive terms for regression.

In the long-term models, annual residential and small commercial energy sales were broken down into base usage, space-heating usage and air-conditioning usage by assuming the minimum-usage month's sales as the base usage of the class in each month of the year. The base usage amount was then subtracted from each month's total energy sales to the class. The residential space-heating usage was further broken down into all-electric space-heating usage and non-all-electric space-heating energy usage. *LG&E* has been separately recording the energy sales to all-electric residential customers from the energy sales to "other" residential customers. Therefore, application of the same "minimum-monthly-usage" approach to the all-electric customer sales yielded the estimates of all-electric space-heating usage. The same approach was followed to separate the non-electric-furnace space heating usage from the monthly total sales to "other" residential customers.

The main explanatory variables of the long-term residential energy sales model are real marginal price of electricity by season and real per capita personal income, cooling and heating degree days, composite saturation rate of air conditioners, and a long-term trend variable. The marginal price of electricity or gas is defined as a block-usage-weighted average of the KWH rates to be paid by each of the customers in the class for the last unit of KWH to be consumed. Real values of price and income variables are in 1982-1984 dollar terms and 1987 dollar terms, respectively. The main drivers of the small commercial model are real marginal price of electricity, service industry employment, CDD and HDD days, saturation rate of all-electric space heating, and a long-term trend variable.

Historical data for the marginal price of electricity were compiled by tracking the KWH rates for each class over the last seventeen years. In the case of residential electricity rates which are differentiated by season and usage block, the marginal price of electricity was calculated by taking a weighted average of the declining (winter) or inclining (summer) block rates. Each of the block rates was weighted by the percentage of the KWH usage originating from the block to the total KWH sales.

The estimated usage per customer model coefficients reflect a slightly increasing trend in base (non-weather-sensitive) usage of both residential and commercial customers but a slightly declining trend in residential weather-sensitive usage. Increasing penetration of new electric appliances, such as personal computers, microwave ovens, home video games and fax machines, is believed to be responsible for the increasing trend. The slightly declining trend in weather-sensitive usage is actually a net effect of two phenomena happening in the energy market: 1) the utilization rate of weather-sensitive appliances has been gradually increasing due to the stabilization of energy prices over the last several years; and 2) capital investments for conservation and retrofitting of old appliances with more energy-efficient units continuously reduce residential air-conditioning and space-heating energy usage.

Large Commercial Sector

The short-term forecasting model of large commercial energy sales also consists of non-weather-sensitive (base load) energy sales, space-heating energy sales and air-conditioning energy sales equations. A historical series of the disaggregated sales data was constructed by utilizing the same "five-minimum-usage-days" method which was used for disaggregating the small commercial sales data. The main drivers of the final model equations selected for forecasting are annual and monthly trend variables, HDD and CDD, and monthly differentiation factors for weather sensitivity. Similar to the cases of residential and small commercial energy sales, the model equation for base usage per customer indicates a slightly increasing trend while both space-heating and air-conditioning usage per customer equations reveal a gradually decreasing trend.

The long-term large commercial energy sales forecasting model is a single-equation model. The variables included in the model are marginal price of electricity, service employment, CDD, and a long-term trend variable. A small positive coefficient estimated for the long-term trend variable implies that the net impact of the increasing trend in base load and the decreasing trend in weather-sensitive sales will be a slight increase in total usage per customer.

Large Industrial Sector

The short-term forecasting model for large industrial energy sales has the capability to individually forecast energy sales to each of the twenty-five largest customers. Energy sales to those twenty-five customers comprise about 75% of total large industrial energy sales. The top twenty-five customers were classified by their standard industrial classification (SIC) code. The University of Louisville performed regression analyses on energy sales to each of the thirteen SIC groups and a residual group which covers the remaining 25% of industrial sales, with its industrial production index and a trend variable. The total average industrial production index was used for the residual group. The final forecast for industrial customers were produced by combining the growth rates implied by the short-term econometric model developed by the University of Louisville, information about their future energy use plans compiled by in

LG&E's Account Executives for industrial customers and a five-year (1993-1997) average annual growth rate for sales to each customer.

The long-term forecasting model of large industrial energy sales is a single-equation model. The independent variables used in the model are marginal price of electricity (using the LP energy rate history from LG&E's tariff), manufacturing employment and a trend variable. A small positive coefficient of the annual trend variable reflects the fact that electric energy intensity of the industrial sector is gradually increasing as manufacturing processes are becoming more automated. This automation trend also conforms with the outlook of shrinking manufacturing employment. The total industrial sales forecasts for the years beyond 2003 were generated by applying the annual growth rate projections produced by the long-term forecasting model to the short-term model forecast for 2003.

Street Lighting Sector

Street lighting energy sales for the next five years were projected by using the most recent five-year's average annual compound growth rate. Street lighting energy sales for 2004-2013 were then predicted by adjusting the short-term annual growth rate with the relative ratio of the forecasted annual growth rate for the number of residential customers in each of those years to the residential customer growth rate experienced in 1997.

Peak Demand Forecasting Model

The 1998 peak demand forecasting model has two equations; one for summer peak load and the other for winter peak load. In both of the model equations, the number of residential customers was used to reflect the growth of the demographic base. The reason for using the annual average number of residential customers to track the service area's population growth is that historical numbers of residential customers are directly observable and readily available, while annual population figures are estimates which are reported with a one or two year time lag in the census years. A temperature-humidity index (THI) for the twenty-four hour period prior to the time of peak demand was used in the summer peak demand model to accommodate the cumulative impact of weather on summer peak load, while heating degree hours at the time of peak demand was used in the winter peak demand model. Heating degree hours are calculated with hourly temperatures, while heating degree days are calculated with daily average temperatures.

Customer Forecasting Model

Both the short and long-term residential and small commercial (or general service) energy sales forecasts were produced by multiplying the per customer usage forecast from the energy sales model by the number of customers forecast from the customer forecasting model.

The annual total number of residential customers were forecasted based on the population projections provided by the Kentucky State Data Center at the University of Louisville and *LG&E's* projected number of persons per residential customer count.

The number of residential all-electric customers was fairly stable for the last several years. New residential gas service was restricted from October 1973 through August 1980. With the gas service moratorium lifted, new residential customers and also existing all-electric customers were allowed to receive gas service. As heat pumps and electric resistance heaters installed during the moratorium period reach the end of their service lives, the residential customers' conversion to gas service has become fairly active in recent years. Economic advantage of natural gas as a heating fuel source over electricity is derived from the current level and foreseeable prospects of the gap between *LG&E's* gas and electricity prices. The main reason for new all-electric customers still being added is their inaccessibility to gas mains or excessive cost of gaining access to gas mains. The annual growth rate for number of residential all-electric customers was projected from the forecasted annual growth rate for total residential customers by using the ratio of the annual growth rate for all-electric customers to the rate for total residential customers experienced in 1996. Since this ratio was very stable in 1997, the 1996 ratio was maintained for the forecast.

The number of general service customers was forecasted as a function of growth in population base and a long-term trend. As implied by a positive coefficient of the trend variable, per capita demand for retail trade, financial and other small commercial/industrial services would increase over time as the standard of living increases. Due to the same reasons cited for the case of all-electric residential customers, almost no increase in the number of general service electric space-heating customers was made over the last ten years.

The economic advantage of natural gas as a heating fuel source over electricity is assumed to continue during the forecast period. *LG&E's* gas main extension policy is also assumed not to change. On the basis of these two assumptions, the number of general service electric space-heating customers was projected to be continuously declining at an average annual rate experienced during the last five years. The short-term large commercial energy sales forecasting model is also a per customer usage model and requires customer projections to produce an energy sales forecast for the class. The projected monthly number of large commercial customers for 1998-2003 was produced by applying a five-year (1992-1997) average factors of monthly variation to the annual average number of customers projected by analyzing a growth trend for 1981-1997.

KENTUCKY UTILITIES

Data Sets

Regional economic and demographic forecasts are generated using a Kentucky Utilities Service Territory Economic Model (KUSTEM) written for KU by the University of Kentucky's Center for Business and Economic Research. The model generates a state-

level forecast of value-added output in conjunction with five regional models, which conform to the local economies served by KU. The five regional models utilize county-level data and the state output forecast by two-digit manufacturing industry to forecast output and employment by two-digit industry, commercial employment by two-digit sector, personal income, and population/households. Four of the regions correspond to Kentucky and one models the Virginia jurisdiction. Quarterly forecasts are developed for the first three years and annual forecasts thereafter. Macro-economic national data to drive the state-level forecast were obtained from Data Resources Inc. (DRI).

Regional weather data are compiled from NOAA. Eight daily observations are averaged to compute a daily average temperature. These daily average temperatures were utilized to calculate heating and cooling degree days. For Residential sector modeling, KU uses a 65 degree base temperature for cooling degree day calculations and a 60 degree day base for heating degree days. For the Commercial sector, KU uses a 65 degree day base for both heating and cooling degree days. For the Industrial Sector, a 70 degree day base for cooling degree days is used. All Kentucky Retail weather data is based on Lexington data. For the Virginia Residential sector, a 65 degree day base is used for both heating and cooling degree days. The data is derived from the Bristol, Tennessee weather station. Municipal models rely on the Lexington weather data except for Madisonville, which uses Evansville, Indiana. All Municipal weather-sensitive models use a 65 degree day base for heating and cooling degree days. In all cases, the heating and cooling degree days are calculated using a ramp function to align the weather data with monthly billing cycles.

Long-term Retail Residential sales for both the Kentucky and Virginia jurisdictions utilize the REEPS (Residential End-Use Planning System) model developed by the Electric Power Research Institute (EPRI). The model requires local information supplemented by regional and/or national data. Key inputs are households, market share saturations by end-use and housing type, average appliance annual energy usage, equipment capital and operating costs, energy prices, efficiency standards, structure characteristics, household income, natural gas availability, and household decay rates.

Real average price per sector is computed from FERC Form 1 data, deflated by the U.S. Implicit price deflator provided by DRI.

Mine Power sales are dependent upon the outlook for coal production in KU's service territory. Resource Data International (RDI) produces the general outlook for the coal industry for KU. Working from a national forecast for coal demand, RDI assesses the competitiveness of Kentucky coal producers to generate a production forecast for both Eastern and Western Kentucky. This production forecast is disaggregated by producing mine, which can then through analysis be associated with KU's Mine Power customers to produce a service territory specific coal production forecast.

Methodologies

Residential

The residential sales forecasting process embodies a combination of short-term econometric and end-use modeling methodologies. Each model is designed to contribute to a specific need of the forecasting process.

The residential sales forecast is developed in three parts (1) a projection of customers by rate class (2) a projection of short-term (three years) monthly energy sales by class and (3) a projection of long-term annual energy sales by class.

A customer model is used to forecast total residential customers. This model relates increases in the number of customers to growth in the number of households for the Company's service territory. These projected customers are apportioned between the all-electric and non all-electric rate classes through the use of a customer allocation model. The rate class disaggregation accounts for differences in usage levels and revenues. In the customer allocation model a discrete choice modeling framework is used to derive all-electric households. The results are then calibrated to the actual net annual change in FERS customers. The net annual change in RS customers is calculated by subtracting the FERS customer forecast from the total residential customer forecast.

Two econometric models are developed as a means of modeling short-term monthly KWH per customer for each residential class. The purpose of these models is to improve the budget forecasting process by analyzing recent sales history. In these econometric models monthly consumption is related to income, weather, price and seasonal binary variables. The projections from the short-term models are merged with the long-term outlooks in a manner that creates continuity between the outlooks.

The long-term energy outlook is derived using the REEPS model. The general premise of the REEPS model is to create a profile of customers in a base year. Calculated energy sales are calibrated to the total normalized energy sales for each rate class in the base year. The REEPS forecast is driven by decision equations that are used to construct multinomial share systems for each end-use. Probabilities are derived based on an end-use's economic attractiveness relative to the economic attractiveness of alternative technologies. The result is a saturation forecast by end-use for each housing type. The model also projects size, use and efficiency values for each end-use and housing type. The KWH per end-use calculation is based on the following equation:

$$\text{Sales} = \text{Households} \times \text{Saturation} \times (\text{Size} \times \text{Use}) / \text{Efficiency}$$

Summing the sales for each appliance by building type an annual energy forecast is derived for each rate class. Following is a more detailed discussion of the REEPS forecasting methodology.

RESIDENTIAL END-USE MODEL (REEPS)

The REEPS model is based on a discrete choice modeling framework. The model utilizes choice equations to construct a "multinomial" share system for all defined end-uses. Each equation relates the market share of an end-use to its economic attractiveness relative to the economic attractiveness of alternate technologies. This results in a market share forecast. These appliance shares are multiplied times the customer forecast and then a kWh per appliance forecast to derive an energy forecast by rate class. Both appliance shares and kWh per appliance are derived within the model. Customers are derived external to the model. The model permits direct interaction with the data, model concepts, and decision equations that are developed for each defined end-use. This gives KU the flexibility to develop a model that reflects demographic and energy usage characteristics of their residential customers.

As with any detailed end-use model, REEPS requires a substantial data development effort and that the user make several assumptions regarding customer behavior and efficiency related issues. REEPS models appliance purchase decisions and energy consumption for ten end-uses plus an HVAC (heating, ventilation, and air conditioning) end-use. The FERS HVAC end-use contains eleven and the RS HVAC end-use contains nine heating and cooling appliances. The FERS class models geothermal heating and cooling due to the anticipated growth of this technology. It is not a factor for the RS class. All of the end-uses included in the models are listed below:

HVAC

Central electric heating	Central air conditioning
Heat pump heating	Heat pump cooling
Geothermal heat pump heating	Geothermal heat pump cooling
Room electric heating	Room air conditioning
Secondary heating	Secondary cooling
Ventilation	

WATER HEATING	MICROWAVE
DISHWASHING	FIRST REFRIGERATOR
CLOTHES DRYING	SECOND REFRIGERATOR
CLOTHES WASHING	FREEZER
RANGE	OTHER APPLIANCES

The REEPS framework for modeling these end-uses consists of a fuel price module, an exogenous variable module, a households module, a demographic segments module, an HVAC module, an appliance list module, and an appliance module. REEPS provides a default database for each of these modules that is derived using information obtained from national survey results. This information is periodically updated by Regional Economic Research Inc. (RER), a consulting group retained by the Electric Power Research Institute (EPRI). The default databases are modified to reflect updated national information, regional data and KU-specific data obtained from the Company's saturation surveys, conditional demand analysis, end-use metering results, and other internal sources. Separate REEPS databases are created for the RS and FERS rate classes.

The fuel price module consists of nominal price series for electricity, natural gas, fuel oil, and firewood as well as an implicit GDP price deflator series. The purpose of this module is to create deflated price series and convert these price series to a common unit of measurement, \$/mmbtu.

The exogenous variable module includes year, average income per household, average number of people per household, heating degree days, cooling degree days, customer forecast by housing type, fuel availability, quantitative measures for appliance efficiency standards, and other demographic variables used by the model. Efficiency standards are incorporated into the model using units of measurement as they are defined in the federal legislation. In the forecast period phase in of new technologies and decay and replacement assumptions are made to derive future values of the efficiency measures.

The household module provides a framework for creating a customer forecast model. However, KU currently has a customer forecast model and the output from this model is used as an input to the REEPS model. The purpose of this module is to calculate new households for three housing types using a fixed decay rate and the exogenous customer forecast.

The demographic segments module allows for dividing the model into smaller, more homogenous groups. Currently each REEPS model is segmented by housing type. Although there are benefits associated with a greater degree of segmentation, the benefits received from further segmentation continue to be weighed against the availability of data and the cost of maintaining a significantly larger database.

The HVAC module consists of 20 primary system combinations plus 3 secondary heating systems and 1 secondary cooling system. The purpose of this module is to calculate saturation rates, energy consumption, appliance efficiencies, and thermal shell efficiencies for a base year and a forecast period for the HVAC systems. Variables included in this module are average and marginal saturation rates for each system, average and marginal appliance size, average and marginal appliance efficiencies, heating and cooling degree days, capital costs, base year appliance unit energy consumptions (UEC's), average and marginal thermal shell efficiency, and appliance availability for each housing type.

The appliance list module is a listing of all base or nonweather sensitive appliances defined for use in the REEPS model. Each appliance listed in this module must be defined in the appliance module.

The appliance module establishes a framework for modeling the purchase/replacement decisions, efficiency, and usage of each end-use not included in the HVAC module. Variables used in this module differ from the HVAC module in that weather and thermal shell characteristics are not specifically modeled for each of these appliances. All of the other variables mentioned before are used in the appliance module.

To begin a REEPS forecast, its computed normal energy consumption is calibrated to an estimate of normalized energy consumption for a base year. 1993 was used as the base year. The forecast is calibrated by revising the "other" appliance UEC in the appliance module. The calibration process creates a base profile of each end-use and its associated parameters. The REEPS forecast is calibrated to the marginal data in the first forecasted year. The forecast is then driven by the multinominal share system, replacements, household decay rates, kWh per appliance, and customer growth projections.

Commercial

The Commercial sector sales forecasting process is a combination of short-term and long-term econometric and end-use modeling methodologies. Econometric modeling is based on a projection of customers and the monthly and seasonal KWH per customer econometric models. The short-term econometric forecast predicts KWH per customer for the three-year period. The remainder of the forecast is derived using the seasonal econometric models.

Commercial customers are forecast as a function of residential customers and a binary term starting in 1987 to capture the effect of the shift in historic data due to the redefinition of commercial and industrial customers.

The short-term model uses monthly KWH per customer as the dependent variable. The independent variables are commercial service territory employment lagged one period, KWH per customer lagged one period, monthly heating degree days for January, February, March, April, and December, and cooling degree days for June, July, August, and September.

The long-term model is based on seasonal data. The cooling season is May through October and the heating season is November through April. An extended summer season relative to the residential models is utilized due to a greater need for cooling load in commercial buildings. The dependent variable in both seasonal models is KWH per customer. For the cooling season model, the explanatory variables are service territory commercial employment, cooling degree days, the real average commercial price of electricity, a binary variable designed to capture the effect of SIC code based segmentation beginning in 1987, and an interaction term between commercial employment and the binary variable.

The Commercial forecast is generated primarily by the econometric method just described. An adjustment is made to the final forecast based on the effects of efficiency standards estimated by use of the COMMEND end-use model. The COMMEND model provides projected sales by eleven building types and nine end-uses and captures the estimated effects of appliance standards. The model is similar in structure to REEPS in

that it uses an integrated end-use econometric modeling framework which combines engineering concepts with economic relationships at the individual appliance level.

KU's use of COMMEND is first to calibrate its results to those of the econometric forecast, in order to generate shared down forecasts by building type and end-use that tie to the econometric forecast. The Standards and DSM module is then activated, which allows the consideration of data related to equipment efficiency standards, thermal efficiency standards, and DSM program impacts. Standards are assigned separately to each end-use and building type. Thermal efficiency standards are not directly represented and modeled in COMMEND. However, the data provided give a path for thermal efficiency levels required by the standards. The path is constructed from the following information.

- The timing of the standards and an assumption about compliance levels.
- The estimated impacts of standards on heat loss during the heating season.
- The estimated impacts of standards on heat gain during the cooling season.

The total estimated impact of standards is directly deducted from the econometric forecast to produce the final Commercial sector forecast.

Industrial

The Industrial sector is an aggregation of sales under the General Service, Light and Power, Large Commercial/Industrial, and High Load Factor rate classifications with SIC codes 20 through 39, plus an additional category for mining sales not covered by KU's Mine Power rate. This particular model sector does not include certain large industrial customers that are modeled individually. The Industrial sector sales forecasting process is also a combination of short-term and long-term econometric modeling methodologies.

The monthly model uses monthly KWH as the dependent variable. The explanatory variables are monthly KWH lagged one period, Real Gross Service Territory Output lagged one period, and June, July, August and September cooling degree days calculated on a 70 degree base, and a binary variable for the month of January.

Annual KWH consumption is the dependent variable in the long-term model. The explanatory variables are Real Gross Service Territory Output, the real average industrial price of electricity and a binary variable designed to capture the effect of SIC code based segmentation beginning in 1987.

Large Industrials

Four large industrial KU customers are individually forecasted. The forecasts for these customers are developed based on recent history in sales and demand, and on communications with the customer regarding its outlook for growth and expansion.

Mine Power

The Mine Power sales and customer forecast reflects sales under KU's Mine Power (MP) and Large Mine Power Time-of-Day (LMP-TOD) rates. These rates are specifically intended for coal mining, cleaning, processing, or other related facilities. As such, electricity usage in this class is driven by the general outlook for coal production, the competitiveness of Kentucky coal reserves, and the supply/demand conditions faced within the Company's service territory.

To forecast sales, the model incorporates intensity of use and market share analyses. Utilizing billing data, the coal production history from Resource Data International (RDI) for West and East Kentucky, and KU field office knowledge, an average KWH/ton extracted on KU territory and KU's approximate share of coal production for 1997 were calculated for both the Eastern and Western Kentucky regions. The analysis was based on data associated with approximately 90 percent of total Mine Power sales. These values were then applied to KU's forecast of coal production in each region to estimate future sales. The Mine Power customer forecast is derived from the KWH forecast by dividing forecasted sales by the 1997 average KWH per customer.

Lighting

KU-Retail lighting sales are forecasted in two groups, outdoor lighting and street lighting. For both groups, the forecast model approach is to forecast the number of fixtures and the average KW rating per fixture. The fixture count times the fixture consumption rate times hours of use determines the energy forecast.

The outdoor area group is projected utilizing two regression models, one for the number of fixtures and one for the average KW rating per fixture. Fixtures are regressed against service territory households and a binary variable that accounts for a revision of the fixture accounting procedure in 1987. As fixtures are a physical unit, the projected fixture values are adjusted so that the last year of known values equals the predicted values. The average KW rating per light is regressed against time and a binary variable that accounts for the impact of the fixture count revision in 1987 on average KW rating per light.

KU provides incandescent, mercury vapor and high pressure sodium (HPS) street lighting service. Incandescent lights are not available for new installations and the price differential between mercury vapor and HPS lights effectively eliminate requests for new mercury vapor systems. The forecast assumes that all new street lights will be HPS. Fixtures are regressed against time and the binary variable for the 1987 revision. For the average KW rating per fixture, existing fixtures are grouped by type and lumen to

identify HPS and non-HPS weighted averages. The mix of HPS lighting types is then held constant over the forecast period. This establishes an average KW rating for HPS fixtures. All increases of fixtures are assumed to occur in the HPS group. The non-HPS fixtures are retired based upon the average of the annual change in fixture count over the last five years. The non-HPS KW per fixture used for the forecast period is based on the average over the last five years. This is the factor used in the energy calculation.

Wholesale

The forecast of municipal purchases from KU is developed by analyzing the Company's GWH sales to each municipality and to Berea College. These wholesale customers sell electricity to various customer classes such as residential, commercial and industrial. Forecast models by customer class are developed for each municipal customer where sufficient data exists. The class sales and customer data are evaluated individually to determine the time frame to be used in the models that appear to most accurately represent the latest growth patterns.

The dependent variable in the sales forecast equation is either total GWH sales or average KWH sales per customer. Common explanatory variables are HDD and/or CDD, real county-level personal income, and time. Real county-level personal income comes from the KUSTEM model.

Individual historic annual loss factors are averaged for a ten-year period, except for Frankfort which uses five years. These factors are applied to the forecasted sales of each municipal customer to arrive at purchases from KU. The monthly aggregate sales are then increased by losses based upon the historic contribution of that month's loss to total annual losses.

Virginia

The Old Dominion Power Company (ODP) operating unit of Kentucky Utilities serves five counties in southwestern Virginia. As these sales occur in the Virginia jurisdiction, they are modeled separately from other retail sales. ODP sales are disaggregated to a rate class basis. Following are summary descriptions of the methodologies employed for each of the Virginia sectors.

Virginia Residential

ODP has one residential rate class for both all-electric and non all-electric customers. The ODP Residential sector sales forecast is developed in two parts (1) a projection of customers and (2) a projection of sales per customer.

The customer forecast is initiated using a population forecast developed by the Virginia Employment Commission. A ratio of customers to population is computed by

county and trended over the forecast period. Future customers are then estimated by multiplying the trended ratio of customer to population by the population forecast. The most recent population forecast is through the year 2010. Therefore, the customer forecast is fixed at the 2010 level for the rest of the forecast period.

The customer forecast is used as an input to a REEPS model database for ODP (refer to the REEPS discussion in the KU Residential sector methodology). The REEPS model is based on a discrete choice modeling framework. The model utilizes choice equations to construct a "multinomial" share system for all defined end-uses. Each equation relates the market share of an end-use to its economic attractiveness relative to the economic attractiveness of alternate technologies. This results in a market share forecast. These appliance shares are multiplied times the customer forecast and then a KWH per appliance forecast to derive an energy forecast by rate class.

Virginia Commercial/Industrial

ODP sales to its Commercial and Industrial sectors are represented by its LP, GS, and Municipal Pumping rate classes. The LP and GS rate classes have been forecast separately to determine the customer outlook and jointly to forecast KWH sales. The customer forecasts are a function of time since 1970 for the LP class and since 1980 for the GS class. The joint approach to forecasting KWH sales allows for the utilization of a SIC coded based methodology.

The sales model disaggregates the two rate classes into three portions; Westmoreland Coal, all other SIC Code 12 (Mining) and other Commercial/Industrial. Westmoreland sales declined significantly after 1996, and the account was essentially closed by the end of 1997. The forecast reflects a market exclusive of Westmoreland ODP sales. Another adjustment to the forecast was made for Wallings Ridge State Prison, for which 27 Gigawatt-Hours of annual sales were assumed. All coal mining sales other than Westmoreland were trended from 1979-1997 to reflect history. The other Commercial/Industrial sales were trended from 1978 since they have shown stable growth.

Virginia Schools

Schools in the ODP service territory are offered a special rate SS. Sales under this rate have been extremely flat since 1987. For the forecast, sales are fixed at a constant 25 Gigawatt-hours.

Virginia Lighting

The forecast for outdoor area and street lighting for ODP is developed using a process identical to that employed for KU-Kentucky Retail jurisdiction lighting. Please refer to the Kentucky Retail Lighting section for a description of the methodology.

HELM METHODOLOGY

HELM develops an 8760 hour load forecast for each class and adds up the class loads to determine the forecasted system demand. This is done by allocating forecasted sales to each day of the year and assigning daily load shapes to each day. HELM creates a library of load shapes that vary by season, day-type, and weather. Days are sorted into day-types, such as week-day or week-end, which have similar characteristics. Load shapes are then estimated from load research data. Finally, HELM adds losses to the class level demand and sums the class forecasts to give the system demand forecast.

The following section describes in detail the process HELM uses to accomplish these tasks.

Allocation of Sales

Annual sales are forecasted for each class and allocated to each day in the year by one of two methods. First, if the energy for a given class is sensitive to weather then normal weather is used to allocate sales to the days of the year. If the sales for a particular class are not affected by the weather then annual sales are simply allocated based on the mix of days in the year.

For weather sensitive classes HELM distributes annual forecasted sales to the days of the year by means of daily allocation factors. HELM estimates daily sales for the forecast period. These values of sales are only used for calculating the allocation factors and are not the official forecasted sales. The HELM forecasted daily sales are estimated using normal weather and are divided by the annual sales to provide the allocation factor.

Sales are forecasted by HELM for each day of the year by use of a Weather Response Function (WRF). The WRF shows the relationship between daily weather and sales. It is calculated by regressing the average daily dry-bulb temperature on daily sales. Any non-linearity that exists is captured by using a spline function. The spline function separates the relationship into segments. For example, there is a segment for all average temperatures between the range of -20 and 0 degrees, another segment for 0 to 25 degrees, and so on throughout the relevant temperature range. Segments are chosen to isolate near linear sections of the relationship. The spline function then estimates a linear relationship within each of these segments. The combination of the segments fully describes the daily sales and weather relationship for all temperatures. Separate WRF's are calculated for each class and can be further separated into WRF's for each season and day-type combination.

HELM then uses forecasted weather files for each year in the forecast period which contain temperature values for each day of the year. The forecasted weather observations are based on 20 years of historical weather data. The maximum average

temperatures for all twenty years are averaged and then assigned to the hottest day of the mapping year. The mapping year is any year of daily weather patterns and is chosen to best represent historical patterns. The same procedure is carried out for the next hottest day and so on for each day in the year. The assignment of temperatures to days is done in a way that maintains weather patterns. That is, if the hottest day of the year falls in July then the hottest day is always assigned to a day in July.

The forecasted weather values are plugged into the regression equation providing predicted sales for each day. The predicted value is then divided by the sum of the predicted values for the year to provide the percent of total sales that each day uses. These percentages are then applied to the official forecasted annual sales to determine the amount of sales to be allocated to each day.

For classes that are not weather sensitive the allocation factor is still calculated by dividing estimated daily load by estimated annual load. However, the estimate for daily load is simply the average historical load for all days that fall into the season, day-type combination. For example, average sales will be calculated for winter, week-days. All winter, week-days in the forecast period will be assigned that average daily sales. Again, annual sales is the sum of the daily sales. Once the allocation factors are determined they are applied to the annual sales forecast in the same manner as the weather sensitive allocation factors.

Load Shapes Development

HELM maintains a library of load shapes, consisting of load shapes that vary by season, day-type, and weather bin. Weather bins are temperature ranges for which loads in the bin have similar shapes. If the average temperature for a day falls into the specified range, that day is assigned to the corresponding weather bin. Unique load shapes are estimated for each weather range to reflect the differences in load shapes as weather changes. Typical weather bins may be -20 to 20 degrees, 20 to 35, and so on.

The load shape for a given season, day-type, and weather bin is derived by calculating the average daily load duration curve and the average daily load shape. The average daily load duration curve sorts the hourly load in each day from the highest load to the lowest and averages the hour with the highest load, then the next highest, and so on. These averages are then mapped to the average load shape. The highest average from the average load duration curve is assigned to the hour with the highest load in the average load shape. This process is done for each hour to develop a "typical" load shape.

Forecast

HELM forecasts class load by determining the amount of sales for each day and the appropriate load shape. By doing this for each day of the year HELM is able to create an 8760 hour demand forecast based on sales for each class. Transmission and distribution losses are then applied to each hour of the class forecast to determine the demand associated with output. Summing the class level demands yields an 8760 hour system forecast.

The Curtailable Service Rider constrains certain customers to reduce their load to specified levels when requested by KU. The constraint is typically imposed when demand is high. Curtailable load is accounted for by two methods in the forecast. First, a portion of curtailable load contracted with the large industrials is accounted for within their individual load shape. The remaining curtailable load is subtracted from the HELM forecast. It is assumed that the contracted load is for 150 hours of curtailment. The curtailable load is subtracted from the HELM forecast by finding the hours of the 150 highest peaks and subtracting the contracted amount from the load for those hours.

James W. Kasey
Testimony

BEFORE THE
KENTUCKY PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS & ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. _____
AND NECESSITY FOR THE ACQUISITION)
OF TWO 164 MEGAWATT COMBUSTION TURBINES)

TESTIMONY OF

JAMES W. KASEY
SENIOR VICE PRESIDENT
LG&E ENERGY MARKETING INC.

1 Q. **Please state your name and business address.**

2 A. My name is James W. Kasey. My business address is 220 West
3 Main Street, Louisville, Kentucky 40202.

4 Q. **What is your position?**

5 A. I am Senior Vice-President of LG&E Energy Marketing Inc., a
6 subsidiary of LG&E Energy Corp.

7 Q. **Please describe your work experience.**

8 A. A complete statement of my education and work
9 responsibilities is attached to my testimony as Appendix A.

10 Q. **What is the purpose of your testimony?**

11 A. My testimony describes wholesale market conditions. It
12 explains how market conditions have changed since 1994,
13 describes market conditions in 1998, and explains what
14 market conditions are expected for the summer of 1999. In
15 particular, my testimony explains that, during the summer
16 of 1998, wholesale energy market prices were very volatile,
17 and that wholesale prices have continued to fluctuate in
18 the forward markets.

19 Q. **Please describe the wholesale power market conditions prior
20 to 1997.**

21 A. Prior to 1997 prices and availability for energy were very
22 firm in the marketplace. Proposals for transactions for
23 one to ten years were being made by numerous marketers with
24 a willingness to take market risk. Proposals would

1 typically be fixed for both price and volumes for the full
2 one to ten year period of the contract. The offer would
3 also be open for one to three months, making it possible
4 for purchasers to compare multiple proposals from marketers
5 and often develop a shortlist before selecting the winning
6 proposal.

7 **Q. What changes occurred that affected the operation of the**
8 **wholesale power market?**

9 A. In April 1996, the Federal Energy Regulatory Commission
10 issued Order 888, which provided for transmission access to
11 any provider of energy (generators, marketers and buyers)
12 on a nondiscriminatory basis. That unbundling resulted in
13 the considerable growth and evolution of the market by
14 introducing an extraordinary number of participants to the
15 wholesale market. With the introduction of additional
16 participants, management of market risk became a necessary
17 activity to be a successful participant.

18 Also, since 1994, the Midwest has experienced rapid
19 peak load growth and interregional demand for Midwest
20 generation resources, but not a corresponding increase in
21 regional generating or transmission capacity. In fact,
22 available generation resources have declined, thus reducing
23 available capacity margins and forcing companies to rely
24 more heavily on resources outside the region.

1 Q. Please describe the wholesale power market conditions in
2 1998.

3 A. By the spring of 1998, participants in the Midwest markets
4 were facing the fact that they would be entering the peak
5 season in a short position. Generators were not committing
6 additional capacity to the market and firm purchased power
7 contracts with liquidated damages were difficult to
8 purchase at historic (Pre-1997) reasonable prices, which in
9 July and August 1996 ranged from \$17 to \$52/MWh. The lack
10 of a reasonable forward market forced many participants
11 into the weekly, daily and hourly markets to meet
12 obligations in the marketplace. By the second quarter of
13 1998, July and August 1998 prices had risen to a range of
14 \$50 to \$300/MWh delivered into Cinergy. These supply and
15 demand conditions led market participants to seek power
16 from other regions at a time when they, too, were
17 experiencing generation and transmission availability
18 difficulties because of both peak load conditions and
19 generation outages.

20 Q. Please describe what occurred in the wholesale power market
21 during June 1998.

22 A. During the week of June 22 to 26, 1998, stunning and
23 unprecedented price volatility occurred in the Midwest
24 wholesale power market. On June 22 to 26, next-day prices

1 for electric energy rose from approximately \$120/MWh to as
2 much as \$2,000/MWh. Significant volumes of hourly
3 purchases occurred at \$3,000 to \$6,000/MWh, and at least
4 one hourly price reached \$7,500/MWh during that period.

5 Several things contributed to this pricing
6 abnormality, including: availability difficulties of both
7 generation and transmission capacity; unseasonably high
8 temperatures; a lack of sufficient communication and access
9 to utility transmission bulletin boards for scheduling
10 purposes; defaults on power sales contracts by some market
11 participants; and inexperience in dealing with these
12 conditions in an increasingly competitive market.

13 Although the extreme price spike in June lasted only a
14 short time, some of its contributing factors are longer
15 term. One such factor is the growth in summer loads in the
16 Midwest market and a corresponding lack of any significant
17 addition of new generating capacity. In addition,
18 substantial amounts of the aforementioned availability
19 shortfall were driven by unplanned nuclear generation
20 outages in the Midwest during both 1997 and 1998. Based on
21 current information the restart of some of these nuclear
22 units is uncertain. Because of this dislocation of
23 generation, the interregional movement of power to meet
24 peak demand is much more competitive than ever before.

1 Q. What have wholesale market conditions been like since June
2 1998?

3 A. The wholesale power market has recovered somewhat - but not
4 fully - from the volatility it experienced in the summer
5 1998. A smaller flare-up occurred in July, with wholesale
6 prices reaching nearly \$1,500/MWh. By August 1998, average
7 market prices had retreated to approximately \$39/MWh.
8 Thus, even in the short period during which the Companies'
9 have been performing their analyses to determine the least-
10 cost option for meeting capacity needs and maintaining a
11 joint reserve margin, the market has changed significantly.

12 Q. Do you have an opinion on what the wholesale power market
13 conditions will be like over the next several years?

14 A. Yes. In my opinion, market prices will decline somewhat
15 but will continue to be volatile during peak load
16 conditions in 1999, 2000, and 2001. For example, the
17 forward market for the summer of 1999 has been trading in a
18 range of between \$100 to \$150/MWh. That power is available
19 in this price range on a " must-take" basis for sixteen
20 hours/day, five days/week for the two-month period of July
21 and August. And, in addition to being expensive, there is
22 still some uncertainty in both delivery and availability.
23 In my opinion, many market participants may be unwilling to

1 sell peaking options, possibly as soon as March of this
2 year.

3 **Q. Please describe the market for summer 1999 call options or**
4 **peaking options.**

5 A. A call option provides its holder with the right but not
6 the obligation to purchase power at a specified price
7 (called the "strike price") by a specified date. The buyer
8 pays a fixed price (called the "option premium") to the
9 seller for this right.

10 A call option for July and August (sometimes called a
11 "peaking option" because July and August are peak months)
12 permits the buyer to notify the seller on a day-ahead basis
13 that the buyer wants to exercise its right to purchase the
14 power for the next day. The price for that power is fixed
15 at the strike price. For every day in July and August, the
16 buyer chooses whether or not to purchase the power for the
17 following day. The buyer pays the option premium whether
18 it chooses to purchase the power or not. Thus, if the
19 buyer chooses to purchase the power, it pays the option
20 premium and the strike price. If the buyer chooses not to
21 purchase the power, it pays only the option premium. In
22 this way, one can think of the option premium as a demand
23 charge and the strike price as an energy charge.

1 Peaking options for July and August of 1999 are
2 currently available at an option price of \$95/MWh with a
3 strike price of \$100 MWh. This means that the buyer pays
4 the seller \$95/MWh for every on-peak day of July and August
5 regardless of whether or not it exercises its right to
6 purchase the \$100/MWh power. The buyer decides each day
7 whether it wants to buy the power at \$100/MWh for the next
8 day. If the buyer exercises its right, it pays a total of
9 \$195/MWh to the seller and accepts delivery of the power;
10 if the buyer does not exercise its right, it pays \$95/MWh
11 to the seller and receives no power.

12 **Q. What is your conclusion about the conditions in the**
13 **wholesale power market?**

14 A. The wholesale power market has changed from a "buyer's
15 market" in 1994 to a "seller's market" in 1998. In my
16 opinion the market is likely to continue to remain a
17 volatile sellers' market through 2001. Energy and capacity
18 at pre-1997 prices will not be available during summer and
19 winter peak periods at least through 2001.

20 **Q. Would you summarize for us your testimony in regard to the**
21 **risk associated with the current market?**

22 A. I believe the best way to illustrate the magnitude of the
23 risk in the market is to use an example of a transaction
24 using market prices we experienced in 1998. If for example

1 you were exposed to the market for one day with a 300 MWh
2 short position, you could buy from the market a sixteen
3 hour schedule that would require you to purchase 4,800 MWh
4 of energy. In 1998, using the prices from June 22 to the
5 26th, you would have paid, for that energy, between
6 \$576,000 at \$120/MWh to as much as \$9,600,000 at \$2,000/MWh
7 depending on when your need occurred during that period. In
8 1998, the January and February forward market for July to
9 August deliveries traded in a range of between \$35 to
10 \$50/MWh and as previously stated the forward markets for
11 those same months in 1999 are trading in a range between
12 \$100 to \$150/MWh. While there is no proven relationship
13 between the forward market and volatility of prices, they
14 certainly are indicative of potential price risk.

15 **Q. Does this conclude your testimony?**

16 **A. Yes, it does.**

1 VERIFICATION

2 STATE OF KENTUCKY)

3) SS:

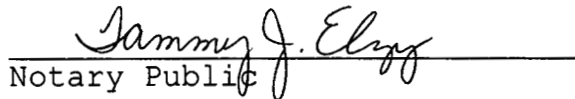
4 COUNTY OF JEFFERSON)

5 The undersigned, **James W. Kasey**, being duly sworn, deposes
6 and says he is Senior Vice President of LG&E Energy Marketing,
7 Inc., that he has personal knowledge of the matters set forth in
8 the foregoing testimony, and that the answers contained therein
9 are true and correct to the best of his information, knowledge
10 and belief.

11
12 
13 _____
James W. Kasey

14
15
16 Subscribed and sworn to before me, a Notary Public in and
17 before said County and State, this 5th day of February, 1999.

18
19 (SEAL)

20 
Notary Public

21 My Commission Expires: November 9, 2002

22
23
24
25

APPENDIX A

JAMES W. KASEY

Senior Vice President -- Sales
LG&E Energy Marketing Inc.
220 West Main Street
PO Box 32030 (40232)
Louisville, KY 40202
(502) 627-2227

Education

University of Louisville, BS in Commerce -- 1964

Current Position

LG&E Energy Marketing Inc., Louisville, KY
March 1997 - February 6, 1999 Senior Vice Pres., Sales

Previous Positions

LG&E Power Marketing Inc., Louisville, KY
1994-1997 -- Vice President, Marketing

Louisville Gas & Electric Company, Louisville, KY
1990-1994 -- Group Manager, Electric Products
1989-1990 -- Manager, Electric Marketing and Sales
1980-1989 -- Coordinator of Rate Research
1975-1980 -- Senior Rate Analyst
1964-1975 -- Rate Analyst
1964-1964 -- Sales and Rate Statistician
1958-1964 -- Cost Accounting, Electric Distribution

Industry Activities

Testified previously at the Kentucky Public Service Commission on both wholesale and retail issues.

Speaker at national symposiums and conventions on demand side management, retail and wholesale cost of service, rate design and the evolution of the wholesale market.

Member of the EEI Commercial and Industrial Marketing Committee.

Member of the EPRI Demand Side Management Task Force.

BEFORE THE
KENTUCKY PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF LOUISVILLE GAS & ELECTRIC)
COMPANY AND KENTUCKY UTILITIES COMPANY)
FOR A CERTIFICATE OF PUBLIC CONVENIENCE) CASE NO. _____
AND NECESSITY FOR THE ACQUISITION OF TWO)
164 MEGAWATT COMBUSTION TURBINES)

TESTIMONY OF

LONNIE E. BELLAR
MANAGER -- GENERATION SYSTEMS PLANNING
LOUISVILLE GAS & ELECTRIC COMPANY
KENTUCKY UTILITIES COMPANY

1 **Q. Please state your name and business address.**

2 A. My name is Lonnie E. Bellar. My business address is 220
3 West Main Street, Louisville, Kentucky 40202.

4 **Q. What is your position?**

5 A. I am the Manager of Generation Systems Planning for
6 Louisville Gas and Electric Company ("LG&E") and Kentucky
7 Utilities Company ("KU") (collectively "the Companies").

8 **Q. Please describe your work experience.**

9 A. After earning a BS in Electrical Engineering and a BS in
10 Engineering Arts in May 1987, I began working as a
11 technical engineer in KU's System Planning Department.
12 Later, I worked as a Supervisor and then Manager of
13 Generation Planning at KU. In May 1998, I became the Group
14 Leader of Generation Planning for LG&E and KU. I recently
15 became Manager of Generation Systems Planning for LG&E and
16 KU. A complete statement of my education and work
17 responsibilities is attached to my testimony as Appendix A.

18 **Q. Why have KU and LG&E decided to acquire combustion turbines
19 now?**

20 A. In their most recent Integrated Resource Plans (IRPs) (1993
21 for LG&E, 1996 for KU), both companies estimated that it
22 would be necessary to construct additional combustion
23 turbines by 1999. But then wholesale market prices
24 stabilized for a time, and the Companies opted to purchase

1 power on the market and delay constructing additional
2 combustion turbines for a few years. In 1997, when
3 preparing for the merger of their parent companies, KU and
4 LG&E projected that they would not need additional
5 combustion turbines until 2000 and 2004, respectively.
6 Since then, however, market prices for purchased power have
7 climbed so sharply that the acquisition of combustion
8 turbines has become the least-cost alternative to meet 1999
9 load capacity needs.

10 **Q. Have the Companies purchased the combustion turbines?**

11 A. No. As explained in the testimony of Ron Willhite, LG&E
12 Capital Corp. purchased the combustion turbines from Asea
13 Brown Boveri (ABB). The Companies are seeking the
14 Commission's approval to acquire the machines from LG&E
15 Capital Corp.

16 **Q. What other advantages will the Companies realize by**
17 **acquiring combustion turbines at this time?**

18 A. The Companies are responding sensibly to wholesale power
19 market conditions. These conditions are described in the
20 testimony of James Kasey, which is part of this
21 application. Acquiring the combustion turbines now will
22 enable the Companies to optimize their base-load capacity
23 during peak times and to control their costs, while

1 reducing the Companies' and their customers' exposure to
2 the risks and volatility of the wholesale power market.

3 **Q. Were other possible vendors of combustion turbines**
4 **solicited for proposals?**

5 A. Black & Veatch ("B&V") obtained information last fall on
6 the Companies' behalf regarding the availability of
7 combustion turbines. B&V informed the Companies that, of
8 the three manufacturers of combustion turbines
9 (Siemens/Westinghouse, General Electric and ABB), only ABB
10 had combustion turbines available for delivery in time to
11 meet the Companies' peaking needs in 1999. The other two
12 vendors did not have machines available for delivery to
13 allow in-service dates before mid-2001, or possibly 2002.

14 **Q. Was there a need to act quickly in purchasing the**
15 **combustion turbines?**

16 A. Yes. Combustion turbines are in high demand at present.
17 ABB's initial bid was only good for one week, which
18 included Labor Day weekend, and therefore was not a viable
19 proposal. The next bid we received from ABB included a
20 higher price for the turbines. As the price of combustion
21 turbines was expected to continue to rise, and the
22 Companies became aware of other potential purchasers of the
23 turbines, LG&E Energy Corp. decided to act quickly on ABB's
24 second bid. Otherwise, there was the possibility that the

1 price would go even higher or the turbines would become
2 unavailable.

3 **Q. Did KU and LG&E formally solicit peaking options before**
4 **entering into the contract with ABB?**

5 A. No. At the time we were considering the ABB bid, market
6 prices for summer 1999 were extremely volatile. The
7 anticipated demand for energy was so great that prices
8 changed daily, often by several dollars per Mwh. This made
9 it difficult, if not impossible, to issue and evaluate a
10 formal request for proposals (RFP) during the short time
11 that the combustion turbines were available. Also, the
12 Companies' expected their forecast of market prices to be
13 indicative of probable RFP responses. The Companies plan
14 to avoid this kind of unpredictability by increasing their
15 own supply of power.

16 **Q. What are the Companies' plans with respect to meeting their**
17 **incremental capacity needs in 1999 and beyond?**

18 A. Approval of the acquisition of the combustion turbines in
19 this case will contribute significantly to meeting the
20 Companies' incremental capacity needs for 1999 and beyond.
21 Additionally, the Companies are in the process of issuing a
22 RFP for purchased power for delivery in 1999-2002. The
23 Companies also plan to solicit formal bids from the three
24 major turbine manufacturers to assess the cost and

1 availability of combustion turbine units for 2000-2002.
2 Thus, the Companies plan to continually evaluate the "build
3 vs. buy" decision to determine the least cost approach to
4 supplying incremental capacity needs. To the extent that
5 the analysis of the RFP and combustion turbine
6 solicitations are complete for purposes of identifying
7 resources and making an assessment of those resources to
8 meet increased capacity needs in 2000-2002, those results
9 will be factored into the Companies' October 1999 IRP
10 filing.

11 **Q. Have the capacity needs of the Companies changed since the**
12 **filing of the most recent IRPs?**

13 A. Yes. However, significant projected capacity needs have
14 historically been identified even though projected peak
15 loads, installed capacity and target reserve margins have
16 changed over time. Exhibit LEB-1 shows the capacity needs
17 required to meet the then current reserve margin for the
18 individual and combined companies at the time of the
19 individual Companies' most recent IRPs; at the time of the
20 merger (1997); and currently. The capacity-need-
21 calculations were made considering, for the time period
22 shown, no new capacity additions or new long term
23 purchases. Also, for the combined need calculation as of
24 the latest IRPs, KU and LG&E peaks were summed with no

1 consideration of peak load diversity. A significant
2 reduction in margin needs is shown between the IRPs and the
3 other time periods and is a result of lower margin
4 requirements, revised load forecasts, and the consideration
5 of peak load diversity.

6 **Q. Have you performed an analysis which shows that the**
7 **acquisition of the two combustion turbines is the best**
8 **resource for the Companies to meet their incremental load?**

9 A. Yes. Exhibit LEB-2 is the Resource Assessment performed by
10 the Companies in connection with the evaluation of the
11 combustion turbines. It was prepared under my supervision
12 and direction. The Resource Assessment compares the
13 options available to the Companies from both the supply and
14 demand sides and assesses the lowest cost, best available
15 resource in terms of the revenue requirements associated
16 with each option.

17 **Q. What is the recommendation of the Resource Assessment?**

18 A. The conclusion of the Resource Assessment is that the
19 acquisition of two 164 MW combustion turbines is the lowest
20 cost, best resource available to the Companies to meet
21 their incremental loads beginning in August 1999.

22 **Q. Is it reasonable for the Companies to acquire the**
23 **combustion turbines from a long-term perspective?**

24 A. Yes. Even if wholesale power prices drop from current
25 levels, the market will support the investment in peaking
26 capacity that the Companies are proposing.

1 Q. What action should the Commission take regarding this
2 Application?

3 A. The Commission should approve the Companies' Application
4 for the acquisition and ownership of the two 164 megawatt
5 combustion turbines.

6 Q. Does this conclude your testimony?

7 Yes, it does.

VERIFICATION

STATE OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

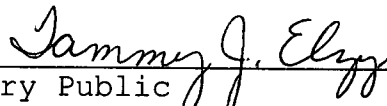
The undersigned, **Lonnie E. Bellar**, being duly sworn, deposes and says that he is the Manager of Generation Systems Planning for Louisville Gas & Electric Company and Kentucky Utilities Company, he has personal knowledge of the matters set forth in the foregoing testimony, and the answers contained therein are true and correct to the best of his information, knowledge and belief.



LONNIE E. BELLAR

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 11th day of February, 1999.

(SEAL)



Notary Public

My Commission Expires:

November 9, 2002

APPENDIX A
LONNIE E. BELLAR

In May 1987, I received a Bachelor's degree in Electrical Engineering from the University of Kentucky and a Bachelor's degree in Engineering Arts from Georgetown College. In addition, I have taken undergraduate accounting courses and have participated in company-sponsored management and computer courses.

Also in May 1987, I joined Kentucky Utilities Company in the Company's System Planning Department as a Technical Engineer I. In May 1990, I became a Technical Engineer II for System Planning, and in August 1992, I became a Technical Engineer Senior I for System Planning. In January 1993, I was promoted to Supervisor of Generation Planning and, in September 1995, was promoted to Manager of Generation Planning. In May 1998, I assumed the responsibility of Group Leader for Generation Planning for the merged Louisville Gas and Electric Company and Kentucky Utilities Company. In September 1998, I became Manager of Generation Systems Planning for Louisville Gas and Electric Company and Kentucky Utilities Company.

KU / LG&E CAPACITY NEEDS

LATEST IRPs (1993 & 1996)

	KU 1996 IRP			LGE 1993 IRP			COMBINED		
	Capability	Peak Load	Need at 17.6 %	Capability	Peak Load	Need at 18%	Capability	Peak Load	Need
1999	3,879	3,758	540	2,545	2,378	261	6,424	6,136	801
2000	3,874	3,830	630	2,545	2,413	302	6,419	6,243	932
2001	3,870	3,895	711	2,545	2,443	338	6,415	6,338	1,048
2002	3,865	3,959	791	2,545	2,472	372	6,410	6,431	1,163
2003	3,859	4,033	884	2,545	2,501	406	6,404	6,534	1,290
2004	3,854	4,112	982	2,545	2,528	438	6,399	6,640	1,420
2005	3,837	4,206	1,109	2,545	2,555	470	6,382	6,761	1,579
2006	3,833	4,306	1,231	2,545	2,581	501	6,378	6,887	1,731
2007	3,979	4,389	1,182	2,545	2,608	532	6,524	6,997	1,715

POST-MERGER (1997/98)

	KU			LGE			COMBINED*		
	Capability	Peak Load	Need at 14%	Capability	Peak Load	Need at 14%	Capability	Peak Load	Need at 14%
1999	3,989	3,824	370	2,559	2,438	220	6,528	6,231	575
2000	3,967	3,920	502	2,559	2,476	264	6,526	6,364	729
2001	3,963	3,999	596	2,559	2,510	302	6,522	6,476	861
2002	3,957	4,072	685	2,559	2,545	342	6,516	6,584	990
2003	3,950	4,146	776	2,575	2,582	368	6,525	6,694	1,106
2004	3,933	4,226	885	2,575	2,625	418	6,508	6,817	1,263
2005	3,927	4,303	978	2,575	2,669	468	6,502	6,937	1,406
2006	3,919	4,379	1,073	2,575	2,710	514	6,494	7,054	1,548
2007	3,914	4,458	1,168	2,575	2,752	562	6,489	7,174	1,689

CURRENT (1999)

	KU			LGE			COMBINED*		
	Capability	Peak Load	Need at 14%	Capability	Peak Load	Need at 14%	Capability	Peak Load	Need at 14%
1999	3,961	3,743	282	2,559	2,409	188	6,520	6,132	470
2000	3,959	3,843	407	2,559	2,490	272	6,518	6,313	679
2001	3,955	3,911	488	2,559	2,537	325	6,514	6,427	813
2002	3,949	3,988	577	2,559	2,583	385	6,508	6,552	961
2003	3,943	4,079	664	2,575	2,631	443	6,518	6,689	1,107
2004	3,938	4,194	777	2,575	2,677	518	6,513	6,849	1,295
2005	3,932	4,295	880	2,575	2,723	587	6,507	6,995	1,467
2006	3,925	4,375	975	2,575	2,775	650	6,500	7,127	1,625
2007	3,920	4,451	1,067	2,575	2,830	712	6,495	7,258	1,779

Note: Capability includes generating capacity and firm purchases, but no planned unit additions.

Need is capacity required to meet target reserve margin, including planned unit additions.

* The current Combined Needs include benefits of shared peak load diversity.

EXHIBIT LEB-2

Louisville Gas & Electric Company

and

Kentucky Utilities Company

Resource Assessment

Prepared by

Generation Systems Planning

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EXECUTIVE SUMMARY

Louisville Gas and Electric Company and Kentucky Utilities Company merged on May 4, 1998. The two utilities now operate a joint generation dispatch system and conduct joint system expansion planning, for the benefit of customers of both utilities. In preparation for the 1999 Integrated Resource Plan (IRP), the Generation Systems Planning department is examining the future generation needs of the combined companies.

At this time, near-term evaluations have been performed for the summer period of 1999. These studies indicate that a capacity need of approximately 470 MW exists in order to maintain the target reserve margin for the 1999 peak period. This necessitates an immediate analysis of alternatives for obtaining the required capacity resources for 1999 on a least cost basis. Historically, each company's strategy has been to meet its incremental margin needs on a least cost basis, through purchasing power from the market during peak months and/or constructing simple cycle-combustion turbines (CTs).

The most recent company plans call for a CT to be placed in-service in 2001. These plans were developed at a time when prices of peaking options were very low compared to the cost of installing CTs. It was more economical to purchase power in lieu of installing capacity to meet reserve margin requirements. Now, however, due to the extreme power price volatility witnessed in the summer of 1998, the price of peaking options has increased.

KU and LG&E propose to meet the immediate reserve margin needs using a diversified approach of (i) accelerating CT construction from 2001 to 1999 and (ii) purchasing the remaining reserve requirements from the market. This strategy is expected to minimize the effect that continued market price volatility will have on the companies in the future.

The increase in summer power prices and increased worldwide demand for CTs have led to the limited availability of combustion turbines. Of the major manufacturers of CTs, only ABB has CTs available for delivery in time to mitigate the cost of meeting reserve margin requirements in 1999. Discussions with ABB and Black & Veatch produced a viable bid to construct CTs at KU's existing E.W. Brown site, with commercial operation commencing in August 1999.

In this study, five different scenarios are evaluated to determine the least-cost approach for securing the necessary capacity for maintaining reserve margin. One scenario entails building the CTs in August 1999; the other four represent delaying the construction and purchasing various peaking options from the market in the meantime. With market conditions at the time of this study, the lowest Net Present Value of Revenue Requirements (NPVRR) is obtained if the CTs are constructed as soon as possible (August 1999).

Comparison of the scenarios indicates that market prices as reflected in the option premiums would have to decrease dramatically (between 36% and 58% from the time of this study) before delaying the CTs would be the preferred course of action. The capital costs would have to decrease in the range of 7% to 30% from the 1999 installation costs to justify delaying the construction of the CTs. Such reductions in either market prices or CT costs are considered unlikely in the near term.

Thus, this analysis shows that the decision to construct the two ABB CTs in 1999 and purchase power to meet remaining reserve margin needs produces the lowest NPVRR of the scenarios considered. This approach is consistent with KU's and LG&E's basic plan for meeting reserve margin needs while capturing the value of accelerating CT construction from 2001 to 1999. This recommendation is only possible because of the availability of the CTs under consideration and the actions taken to secure the CTs.

INTRODUCTION

Louisville Gas and Electric Company and Kentucky Utilities Company merged on May 4, 1998. The two utilities now operate a joint generation dispatch system for the benefit of customers of both utilities, as outlined in the Power System Supply Agreement (PSSA). That is, the generating units of both companies are dispatched in economic order to meet the combined demands of both KU and LG&E customers.

As a result of the merger and as specified in the PSSA, the two companies also conduct joint generation and expansion planning for the combined companies. The companies will file a combined Integrated Resource Plan (IRP) with the Kentucky Public Service Commission in October, 1999.

The Joint Expansion Planning Process

As a part of the joint expansion planning process and in preparation for the 1999 IRP, the Generation Systems Planning department is examining the future generation needs of the combined companies.

The first component of the expansion planning process is to quantify the future generation capacity needs of the combined companies. Such needs are determined by analyzing the forecasts for customer demand, generating capacity, power purchases and power sales of both companies for future years. The forecast data is used to determine how much additional capacity is required to maintain the target reserve margin.

The second component of the expansion planning process is to determine and evaluate the viable alternatives for increasing the available capacity. Several alternatives exist: enhancements to existing facilities, construction of new resources, conservation programs/Demand-Side Management (DSM), and power purchases. Any option considered must realistically assist in meeting the target reserve margin for the combined companies.

The joint expansion planning process culminates in the production of the IRP, in which the long-term resource assessment and acquisition plan for the combined companies will be documented in detail. The IRP will be filed in October of this year. The IRP will include a thorough examination of future capacity needs and detailed consideration of the numerous alternatives that exist for meeting those needs.

At this time, near-term evaluations have been performed for the summer period of 1999. These studies indicate that a capacity need of approximately 470 MW exists in order to maintain the target reserve margin for the 1999 peak period. This necessitates an immediate analysis of alternatives for obtaining the required capacity resources for 1999.

Purpose of Report

The purpose of this report is to explain the immediate needs that have been identified through the joint expansion planning process to date and to explain and justify the recommendation to construct two new simple-cycle Combustion Turbines (CTs) as soon as possible.

First, the current need for capacity will be discussed. The historical strategy of each company will be examined; discussion of why that strategy, while remaining primarily the same, has yielded somewhat different results will follow. This discussion will include a detailed explanation of the impacts of the rapidly changing electric energy market on the expansion planning process.

Then, considering knowledge of the current wholesale marketplace, reasonable alternatives for how to proceed will be identified and evaluated. The evaluation process will be discussed, conclusions will be drawn, and a recommendation will be made.

Structure of Report

This report is organized in the following manner:

- **Background** is provided on Capacity Need, LG&E and KU Historical Expansion Planning Strategy, Energy Market Products, Market Events of Summer 1998, and the Impact of Summer 1998 Price Spikes;
- **Discussion of Alternatives** is provided to identify potential solutions to the problem of immediate capacity need, and to explain the sensitivity analyses that surround each alternative;
- **Modeling of Scenarios** is discussed to highlight the PROSYM Chronological Simulation Model and generation modeling information;
- **Discussion of Results** is provided, collectively and for each scenario, including comparisons of cost advantages and disadvantages of each;
- **Conclusion and Recommendations** are provided to summarize the most desirable course of action based on the analysis herein; and the
- **Appendix** includes a thorough compilation of all modeling assumptions and key data items used in the PROSYM production cost model, as well as other supporting data relevant to the assessment herein.

BACKGROUND

Capacity Need

Historically, KU and LG&E have maintained adequate reserve margins to insure reliable least-cost generation supply to native load customers. As a result of the merger, KU and LG&E established a joint target reserve margin criterion of 14%. Pre-Merger individual company reserve margins were 15% for KU and 16% for LG&E. Reserve margin is necessary because additional generation must be available in case of unexpected loss of generation, reduced generation due to equipment problems, unanticipated load growth, variance in load due to extreme weather conditions, and/or disruptions in contracted purchase power.

As shown in Attachment 1, the combined reserve margin of KU and LG&E in absence of further action is projected to decline from 6% to -1% between 1999 and 2002. Projected reserve margins for existing capacity in the East Central Area Reliability Region (ECAR)--which includes the states of Kentucky, Indiana, Michigan, Ohio, Pennsylvania, Virginia, and West Virginia--are expected to decline from 11.0% to 5.5% over the same period. Even with planned capacity additions, ECAR projected reserve margins are expected to decline from 14.0% to 11% over the period (according to "Assessment of ECAR-wide Capacity Margins--98GRP-57" Loads and Capability Data book--see Attachment 2).

Historical Strategy

Each company's strategy has been and is to meet its incremental margin needs through purchasing peaking options during peak months and/or constructing simple cycle-combustion turbines (CTs). This strategy is outlined in each company's Integrated Resource Plan (IRP) and was not altered as a result of the merger, due to the similarity between the two company's generation mix and load profiles. A summary of each Company's most recent IRP expansion plan is shown below.

Table 1. Expansion Plans from Most Recent IRPs

Year	KU 1996 IRP Expansion Plan	LG&E 1993 IRP Expansion Plan
1998	Two 120 MW Brown CTs	93.5 MW Firm Short Term Purchase
1999	One 120 MW Brown CT	108 MW Trimble County CT
2000	One 120 MW Brown CT	108 MW Trimble County CT
2001		
2002	150 MW CC1 Phase 1&2	
2003	150 MW CC1 Phase 3	
2004	150 MW CC2 Phase 1	111 MW CAES
2005		
2006	150 MW CC2 Phase 2	
2007	150 MW CC2 Phase 3	

As Table 1 illustrates, the expansion plans of both utilities recommend the installation of simple-cycle combustion turbines as the next physical asset addition. (The two KU CT's to be installed in 1998 were delayed through the purchase of peaking power options outlined below.) The IRPs recommend the installation of simple-cycle combustion turbine units or the purchase of peaking options as the initial step of a long-range plan. The decision to construct CTs or purchase peaking options has been made on an ongoing basis considering the relative economics. A study currently underway for the combined utilities (which will be included in the October 1999 IRP) indicates that the most economical construction alternative continues to be the simple-cycle combustion turbine. Furthermore, it suggests that additional CTs should be built before other technology alternatives are utilized. Preliminary results of this study indicate that in addition to simple-cycle CTs, combined-cycle combustion turbines would be part of the combined companies' resource plan.

Since the filing of each company's most recent IRP, the buy / build decision-making process was performed via the issuance of Request for Proposals (RFP). These proposals were then compared with various build scenarios, and the least cost method was then chosen. Most recently, this process resulted in KU and LG&E purchasing peaking power for Summer 1998 and KU purchasing peaking power for Winter 1998-99, as indicated in Table 2.

Table 2. 1998-99 Purchases

Buyer	Term			Capacity Charge				Energy Charge	
	From	To	Supplier	MW	\$/kW-Month	\$/MW-Week	Total \$	Max (\$/MWh)	Estimated (\$/MWh)
LG&E	07/01/98	08/31/98	Cinergy	50	1.50	356.19	149,600	70.00	70.00
KU	06/01/98	08/31/98	Cinergy	110	1.50	342.39	495,000	60.25	Market
KU	01/01/99	02/28/99	Cinergy	110	1.50	355.93	330,000	31.75	Market
KU	06/01/98	08/31/98	Enron	110	1.79	408.59	590,700	32.00	32.00
KU	01/01/99	02/28/99	Enron	110	1.55	367.80	341,000	32.00	32.00

As a result of the experiences of 1998, it has become increasingly difficult to forecast market prices for time periods very far into the future. The volatility of the forward market at this time is not conducive to the time period required to complete the RFP process. In today's market, forward prices change daily--often by several percent. Therefore, the decision to buy or build has become more difficult. Diversification has become more important in that both the reliability and availability of purchase power is somewhat questionable. While wise decision-making in this type of environment is not

easy, it must be accomplished using available information, experience in the energy marketplace, and intelligent risk management.

Background on Energy Market Products

The standard product that is bought and sold in the over-the-counter electric power market is a 50 MW block of energy for the on-peak time period. One product traded is a Daily 1x16 (50 MW each hour for 16 hours, that is from hour-ending 8 through hour-ending 23 EPT for one day only). Others include Weekly 5x16 (Monday through Friday, 50 MW each hour for 16 hours per day) or Monthly 5x16 (Monday through Friday of the calendar month, 50 MW each hour for 16 hours per day).

These products are the basic power products traded among power marketing entities and utilities, often with the aid of energy brokerage entities. Such power brokering organizations facilitate price discovery and make price information for forward contracts publicly available.

Hourly energy is also bought and sold, typically among the utilities themselves. Because hourly trades are not typically brokered, price discovery and trade verification for these transactions is more difficult.

The aforementioned products are the basic elements of a power marketing portfolio. Buying or selling options may enhance the portfolio. A daily call option provides the buyer the right (but not the obligation) to buy a 1x16 block of energy at a given exercise price; the buyer typically must exercise by 11 AM Central Prevailing Time (CPT) on a day-ahead basis. A daily put option gives the buyer the right to sell a similar block of energy. The daily option is usually traded for a full month; i.e. one buys the option to call on energy on a daily basis for each business day of the calendar month. Monthly 5x16 options exist as well, in which the buyer has a one-time right to exercise the option for every business day of the calendar month. These option products serve as risk management tools for the power marketing entity, especially for those dealing mostly with the 16-hour standard products.

Market Events: Summer 1998 Price Spikes

Several parameters should be considered when examining the market events of June and July 1998. Monthly, daily, and hourly energy prices are considered. *Power Markets Week* and *Megawatt Daily* provide survey documentation of average daily prices for each business day. *Power Markets Week* also provides periodic reference to monthly forward contract prices, and *Megawatt Daily* provides text articles that refer to hourly prices. Thus the daily prices are the most consistently available, while the monthly and hourly prices are available less often and are more difficult to verify.

In August 1996, the highest price documented for an average daily 1x16 in ECAR was \$51.70. The average daily price for all of July and August in 1996 was \$26.54, according to *Power Markets Week* survey data. (See Figure 1.)

In June 1997, the highest documented average daily price into Cinergy was \$92.66. In July 1997, the highest documented average daily price into Cinergy was \$239.54. The average daily price for all of July and August in 1997 was \$38.85. (See Figure 2.) These prices indicate that in 1996 and 1997, prices spiked for a few days during the summer, but only for a few days. Overall average prices remained somewhat stable and not unreasonably high, relative to typical system production costs under heavy load conditions.

Early in 1998, the market showed signs of awareness that the summer could bring high prices. Prices were expected to be high, in part because of the El Nino-driven weather. In early February, the forward prices into Cinergy for July/August rose to over \$50 per MWh. (*Power Markets Week*, February 16, 1998). Prices were somewhat stable through the second quarter of 1998, but began to rise again in early spring. In early April, the July/August forward price into Cinergy was \$68.50 per MWh. In addition to hot weather, traders were concerned about NERC's Summer Assessment, which indicated that the summer of 1998 should be "the most challenging to reliability in recent years" (*Power Markets Week*, May 11, 1998, pp. 1, 15). A FERC study team reported that "many traders were nervous about the generation situation in the Midwest and decided that purchasing forward contracts was the best way to prepare for possible price increases" (Staff Report to the FERC on the Causes of Wholesale Electric Pricing Abnormalities in the Midwest During June 1998, September 22, 1998, p. 3-9).

In early May 1998, unseasonably hot weather drove hourly prices up to \$500 per MWh. Next day spot market prices into Cinergy traded at an average price of \$167 on May 19, 1998. The price for July-August rose above \$80. The May mini-spike caused the upward price trend to continue into June.

During the week of June 22, 1998, wholesale electricity prices reached unprecedented levels. Prices increased throughout the week as high temperatures drove up system loads. The highest documented price was an hourly price of \$7,500 per MWh for 50 MW, paid by one Midwest utility for one hour. Several utilities paid high prices for substantial quantities of electricity in both the hourly and next day markets, with significant levels of hourly purchases at \$3,000 to \$6,000 per MWh. Day-ahead prices peaked on June 26, 1998, for which the average daily price into Cinergy was \$2,013. Bid prices for the July-August monthly 5x16 package rose from \$180 on June 23 to \$200 on June 24 to \$275 on June 25. July-August was rumored to have traded as high as \$325 on June 25.

After the June price spike, hourly and day-ahead prices returned to normal levels. The average next-day price for July 1, 1998 into Cinergy was \$45. Prices ran up again in late July, during which the average next-day price into Cinergy reached \$1,493. Prices

for next-day power in August did not exceed \$83, and for the month of August, averaged only \$39.10. (See Figure 3.)

Thus it is evident that prices for July-August 1998 were \$50 in February, \$68 in April, mid-\$80's in May, \$180 on June 23 and \$275 on June 25. During July and August, the price for the balance of the summer (both months) remained above \$100. Prices for July-August 1999 were within approximately \$10 of the summer 1998 prices throughout that entire period, and maintained the trend at the end of summer 1998. Since September 1998, prices into Cinergy for July-August 1999 have fluctuated between \$100 and \$150 (See Figures 4 and 5.)

Impact of Summer Price Spikes

The prices discussed above have significant influence over the price of options for the same time periods. The volatility in the monthly, daily, and hourly markets for June through August caused several utilities and power marketers to default on their power sales obligations. These utility defaults increase the uncertainty of peaking option availability. The price volatility also creates uncertainty in price exposure for peaking options, making them a less desirable mitigation tool for managing the overall risk of the utility's portfolio.

The effects of the tremendous increase in summer 1998 power prices coupled with worldwide demand for CT's have led to the limited availability of combustion turbines. According to an article in Wall Street Journal on October 27, 1998, by William C. Carley, "General Electric and Siemens say delivery dates for their gas turbines are nearly sold out into the summer of 2001." Of the three manufacturers of CTs, Siemens/Westinghouse, General Electric (GE) and Asea Brown Boveri (ABB), only ABB has economically viable CTs available for delivery in time to mitigate the cost of meeting our peaking needs in 1999. The other vendors have indicated that they will not have CTs available for shipment to allow in-service dates before mid-2001 or possibly 2002. Furthermore, in order to have a 2001 or 2002 in-service date, the decision to purchase the units would be required immediately.

KU and LG&E Response

Before the price spikes of summer 1998, purchasing peaking options was the least cost approach to maintain reserve margin. (KU and LG&E purchased and utilized 270 MW of peaking options for the summer of 1998.) Also, KU had plans to construct a CT in 2000, and it was assumed as a result of the merger, the CT could be delayed until 2001 through the continued purchase of peaking options. This strategy merits reconsideration based on the volatility of power prices and the demand for CTs following the events of summer 1998.

The companies propose to meet the immediate reserve margin needs using a diversified approach of (i) accelerating CT construction from 2001 to 1999 and (ii) purchasing the remaining reserve requirements from the market. This strategy is expected to minimize the effect that continued market price volatility will have on the companies in the future.

Discussions with ABB and Black and Veatch have produced a viable bid to construct CTs at the existing E.W. Brown CT site (located in central Kentucky) with commercial operation commencing in August 1999. This start-up date is a valuable competitive advantage given the market conditions that have prevailed since June 1998. The date is only possible because (i) the environmental permitting has already been completed at Brown, and (ii) ABB can deliver the CTs in time to allow a summer 1999 installation.

The analysis described herein is an extension of KU's and LG&E's planning process and recommendations of their respective IRPs to continually evaluate the "Buy vs. Build" decision with respect to reserve margin needs. It justifies and recommends the acceleration of CT construction from 2001 to 1999. The justification and recommendation to build the CTs has been performed using a least cost revenue requirements analysis.

DISCUSSION OF ALTERNATIVES

Identifying Alternatives

As outlined above, the unprecedented market conditions of summer 1998 limit the number of options available to meet 1999 reserve margin requirements. Considering present market conditions, the options evaluated to meet 1999 reserve margin needs were purchase power and the construction of two ABB GT24a simple cycle combustion turbines (CT) along with purchase power. Purchase power alternatives considered consisted of peaking options priced by the Energy Marketing group within the company. The construction option was based on the bid received from ABB for the construction of GT24a simple cycle CTs. Although other build options would be available in the future, the ABB CTs were used to represent the market for CTs considering the previously described CT market.

Sensitivity and Break Even Analysis

In order to do a complete analysis with the best information available, sensitivity analysis was part of the evaluation. Market conditions are volatile thus CTs may become available earlier than anticipated and peaking option prices may change. The assumed in-service date of the CTs, installed cost of the CTs, and the premium paid for peaking options were evaluated as key variables in the analysis.

MODELING OF SCENARIOS

Overview of the PROSYM Chronological Simulation Model

The PROSYM production costing model was used to evaluate the production cost revenue requirements associated with each scenario. PROSYM is a product of *Henwood Energy Services, Inc.* It is a chronological electric utility production simulation modeling system that is designed for performing planning and operational studies on an hourly basis. It uses convergent Monte Carlo analysis to give the least cost and most economical dispatch of generation resources, simulating the Power Supply System Agreement (PSSA) joint dispatch. PROSYM is able to simulate the utilization of typical generation resources such as generating units and also the peaking options considered in this analysis.

General Modeling Information

The modeled load areas for the analysis were KU, LG&E, and Owensboro Municipal Utilities (OMU). The OMU area was simulated to capture the relationship KU

has with OMU. The key data items used in the PROSYM model and a compilation of significant modeling assumptions are identified in Appendix A. The evaluation assumed no off-system sales would be made. However, the model does allow for purchases from the market at a price as determined by the company's Energy Marketing group. The cost and attributes of these available market purchases are included in Appendix A.

The capital costs were evaluated using a levelized fixed-charge rate (FCR) and the estimated capital cost associated with construction of CTs. Details of the FCR and other financial parameters are listed in Appendix A. FCR data was developed for KU and LG&E based on economic assumptions outlined in Appendix B. A combined FCR was developed based on a weighting provided for in the PSSA. The weighting was determined by the ratio of the companies' respective 1999 reserve margin needs.

The characteristics of the combustion turbines that ABB has available for installation by August 1999 are modeled as follows; PROSYM input data for the CTs appears in Appendix C.

- Two CTs with summer/winter ratings of 164/181 MW
- 10,500 Full Load Heat Rate (HHV)
- Installed cost including associated transmission work and project contingency of 125 M\$ (See Appendix F.)
- Assumed fuel cost for 1999 of 241 c/MBtu
- Annual Operation and Maintenance Cost excluding fuel \$840,000/Year for both units

The peaking power options being considered were modeled as follows:

- Three 110 MW, 5x16 (hour-ending 8 through 23, Monday through Friday) call options were modeled.
- They were modeled as 16-hour must-take schedules (where the full 110 MW were either taken for 16 hours of the day, or not taken at all).
- The exercise price of the peaking call options was either 35 \$/MWH or 100 \$/MWH depending on the scenario.
- The price of the options in July 1999 was 32.42 \$/KW-month for the \$35 option and 30.24 \$/KW-month for the \$100 option. Appendix D details monthly peaking option prices, as compiled by the Energy Marketing group. (Note that option premiums are dependent upon underlying market price and volatility, strike price, interest rate and time to expiration; therefore, the premiums utilized in this study will not necessarily resemble the premiums at some other point in time for the same product.)

Production Run Scenarios

Table 3 outlines the Production Run Scenarios considered in the analysis. (Detailed outputs are included in Appendix E.) These scenarios represent alternatives

available to meet 1999 reserve margin needs. The minimization of Net Present Value of Revenue Requirements (NPVRR) will be used as the decision criteria to determine the favored scenario. Also, from the results of the scenarios a break-even analysis can be performed with respect to the CT installed cost and the cost of peaking options.

Table 3. Production Run Scenarios

Scenario	Description
1	Construct two ABB GT24a CTs (328 MW) with an in-service date of August, 1999. Purchase market power for remaining reserve margin needs
2	Purchase 35 \$/MWH call options (330 MW) for all months and defer construction of the two ABB GT24a CTs until June 2001. Purchase market power for remaining reserve margin needs.
3	Purchase 100 \$/MWH call options (330 MW) for summer months and defer construction of the two ABB GT24a CTs until June 2001. Purchase market power for remaining reserve margin needs.
4	Purchase 35 \$/MWH call options (330 MW) for all months and defer construction of the two ABB GT24a CTs until June 2002. Purchase market power for remaining reserve margin needs.
5	Purchase 100 \$/MWH call options (330 MW) for summer months and defer construction of the two ABB GT24a CTs until June 2002. Purchase market power for remaining reserve margin needs.

DISCUSSION OF RESULTS

Scenario Production Runs

The revenue requirements including both production cost and capital cost of the CTs for each scenario were calculated and are summarized in Table 4. The NPVRRs shown in Table 4 below reflect the revenue requirements for 1999-2027. The results of each scenario are discussed below the table, and a general summary of overall conclusions follows.

Table 4. Results of Production Runs

Scenario	CT In-Service Date	Call Strike Price (\$/MWh)	NPV of Revenue Requirement (\$1000)	Delta from '99 CT Construction (\$1000)	Call Option Premium Reduction Required for Break-even	CT Capital Reduction Required for Break-even
1	Aug 1999	-	5,835,277	-	-	-
2	Jun 2001	35	5,857,119	21,842	55%	17%
3	Jun 2001	100	5,844,414	9,137	36%	7%
4	Jun 2002	35	5,870,350	35,073	58%	30%
5	Jun 2002	100	5,853,025	17,748	45%	15%

Scenario 1: Construct CTs in August 1999

In this scenario, the CTs are placed in-service by August 1999, no call options are purchased and market power is used to meet remaining reserve margin needs. The NPVRR for this scenario is \$5,835,277,000. This scenario, having the least NPVRR of those evaluated, becomes the basis for comparison.

Scenario 2: Purchase 35 \$/MWH Call Options and Construct CTs in June 2001

In this scenario, 330 MW of call options are purchased to cover all months between August 1999 and May 2001; the two CTs are placed in-service in June 2001. The strike price of the call options is 35 \$/MWH and was chosen to approximate the variable operating cost of the CT. Market power is used to meet remaining reserve margin needs. The NPVRR for this scenario is \$5,857,119,000. This scenario represents an increase in NPVRR of \$21,842,000 over Scenario 1.

For this scenario, the option premiums must be reduced by 55% to break even with Scenario 1, the August 1999 CT installation. Similarly, 2001 CT capital installation costs must be 17% below forecast levels to break even with Scenario 1, the August 1999 CT installation.

Scenario 3: Purchase 100 \$/MWH Call Options and Construct CTs in June 2001

In this scenario, 330 MW of call options are purchased to cover all summer months between August 1999 and May 2001; the two CTs are placed in-service in June 2001. The strike price of the call options is 100 \$/MWH and was chosen to represent a "higher" priced call option alternative. Market power is used to meet remaining reserve margin needs. The NPVRR for this scenario is \$5,844,414,000. This scenario represents

an increase in NPVRR of \$9,137,000 over Scenario 1. This scenario is preferred over Scenario 2. However, this scenario has a higher risk than Scenario 2 or Scenario 1. This high risk is associated with its utilization (100 \$/MWH strike price vs. 35 \$/MWH strike price) and its unavailability during shoulder peak and off peak months.

For this scenario, the option premiums must be reduced by 36% to break even with the Scenario 1, the August 1999 CT installation. Similarly, 2001 CT capital installation costs must be 7% below forecast levels to break even with Scenario 1, the August 1999 CT installation.

Scenario 4: Purchase 35 \$/MWH Call Options and Construct CTs in June 2002

In this scenario, 330 MW of call options are purchased to cover all months between August 1999 and May 2002; the two CTs are placed in-service in June 2002. The strike price of the call options is 35 \$/MWH and was chosen to approximate the variable operating cost of the CT. Market power is used to meet remaining reserve margin needs. The NPVRR for this scenario is \$5,870,350,000. This scenario represents an increase in NPVRR of \$35,073,000 over Scenario 1. This scenario compared to Scenario 2 has a \$13,231,000 higher NPVRR which demonstrates the disadvantage of delaying CT construction.

For this scenario, the option premiums must be reduced by 58% to break even with Scenario 1, the August 1999 CT installation. Similarly, 2002 CT capital installation costs must be 30% below forecast levels to break even with Scenario 1, the August 1999 CT installation.

Scenario 5: Purchase 100 \$/MWH Call Options and Construct CTs in June 2002

In this scenario, 330 MW of call options are purchased to cover all summer months between August 1999 and May 2002; the two CTs are placed in-service in June 2002. The strike price of the call options is 100 \$/MWH and was chosen to represent a "higher" priced call option alternative. Market power is used to meet remaining reserve margin needs. The NPVRR for this scenario is \$5,853,025,000. This scenario represents an increase in NPVRR of \$17,748,000 over Scenario 1. This scenario is preferred over Scenario 4. However, this scenario has a higher risk associated with its utilization (100 \$/MWH strike price vs. 35 \$/MWH strike price) and its unavailability during shoulder peak and off peak months. When compared to Scenario 3 this scenario has a higher NPVRR of \$8,611,000 which again demonstrates the disadvantage of delaying CT construction.

For this scenario, the option premiums must be reduced by 45% to break even with the Scenario 1, the August 1999 CT installation. The CT capital installation costs must be 15% below forecast levels to break even with Scenario 1, the August 1999 CT installation.

CONCLUSION AND RECOMMENDATIONS

Several conclusions can be drawn from the results of the scenario runs described above.

- With the current purchase power market, lower NPVRR can be obtained by purchasing 100 \$/MWH call options for summer months only rather than 35 \$/MWH call options year around. However, this strategy has a risk associated with the utilization of the call options and the unavailability of the options in shoulder peak and off peak months.
- With market conditions at the time of this study, the lowest NPVRR is obtained if the company constructs the CTs in question as soon as possible (August 1999).
- Market prices as reflected in the option premiums would have to decrease dramatically (between 36% and 58% from the time of this study) before delaying the CTs would be the preferred course of action. Given all market indicators, such a reduction is unlikely.
- The capital costs would have to decrease in the range of 7% to 30% from the 1999 installation costs to justify delaying the construction of the CTs. Given the current market for CTs and considering the fact that the pricing of CTs has dramatically increased in recent months in response to both demand for CTs and the energy market, a reduction in CT costs is unlikely in the near term.

In summary, the price of peaking power options was very dynamic at the time LG&E Capital committed to construct the two ABB GT24a CTs at the existing KU E. W. Brown CT site. Also, the market for CTs was itself very active. This analysis shows the decision to construct the two ABB CTs in 1999 and purchase power to meet remaining reserve margin needs produces the lowest NPVRR of the scenarios considered. This approach is consistent with KU's and LG&E's basic plan for meeting reserve margin needs while capturing the value of accelerating CT construction from 2001 to 1999. This recommendation is only possible because of the availability of the CTs under consideration and the actions the company has taken to secure the CTs.

Attachment 1. Planned Reserve Margins for LG&E and KU

	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
Generating Capacity Plus				
<u>Committed Purchases (MW)</u>				
LGE	2,559	2,559	2,559	2,559
KU	3,572	3,572	3,572	3,572
Purchases	<u>389</u>	<u>387</u>	<u>383</u>	<u>377</u>
LGE & KU Combined	6,520	6,518	6,514	6,508
<u>Peak Demand</u>				
LGE & KU Combined	6,132	6,311	6,425	6,550
<u>Surplus/Deficit Capacity (MW)</u>				
LGE & KU Combined	388	207	89	(42)
Reserve Margin (%)	6%	3%	1%	-1%
<u>Additional Capacity MW Needed to Achieve 14 % Reserve Margin</u>				
LGE & KU Combined	470	677	811	959

Attachment 2. Planned Reserve Margins for ECAR

	1998	1999	2000	2001	2002
ECAR Member Existing Capacity (MW)	102,315	102,352	102,407	102,407	102,305
Projected Capacity Purchases (MW)	2,966	3,454	3,846	4,375	4,235
Projected Capacity Sales (MW)	(1,236)	(1,206)	(963)	(1,076)	(1,149)
Planned Capacity Additions (MW)	-	452	982	1,914	2,432
Net Capacity Resources (MW)	104,045	105,052	106,272	107,620	107,823
Total Internal Demand (MW)	94,086	95,885	97,314	99,219	100,845
Load Management (MW)	138	153	162	171	176
Interruptible Load (MW)	3,484	3,561	3,577	3,604	3,667
Net Internal Demand (MW)	90,464	92,171	93,575	95,444	97,002
Reserve Margin (MW)	13,581	12,881	12,697	12,176	10,821
Reserve Margin (%)	15.0%	14.0%	13.6%	12.8%	11.2%
ECAR Member Existing Capacity Only					
Reserve Margin (MW)	11,851	10,181	8,832	6,963	5,303
Reserve Margin (%)	13.1%	11.0%	9.4%	7.3%	5.5%

Notes:

- 1) ECAR Member Existing Capacity includes NUG generation.
- 2) All information is from "Assessment of ECAR-Wide Capacity Margins -- 98GRP-57" Loads and Capability Data book.

Figure 1

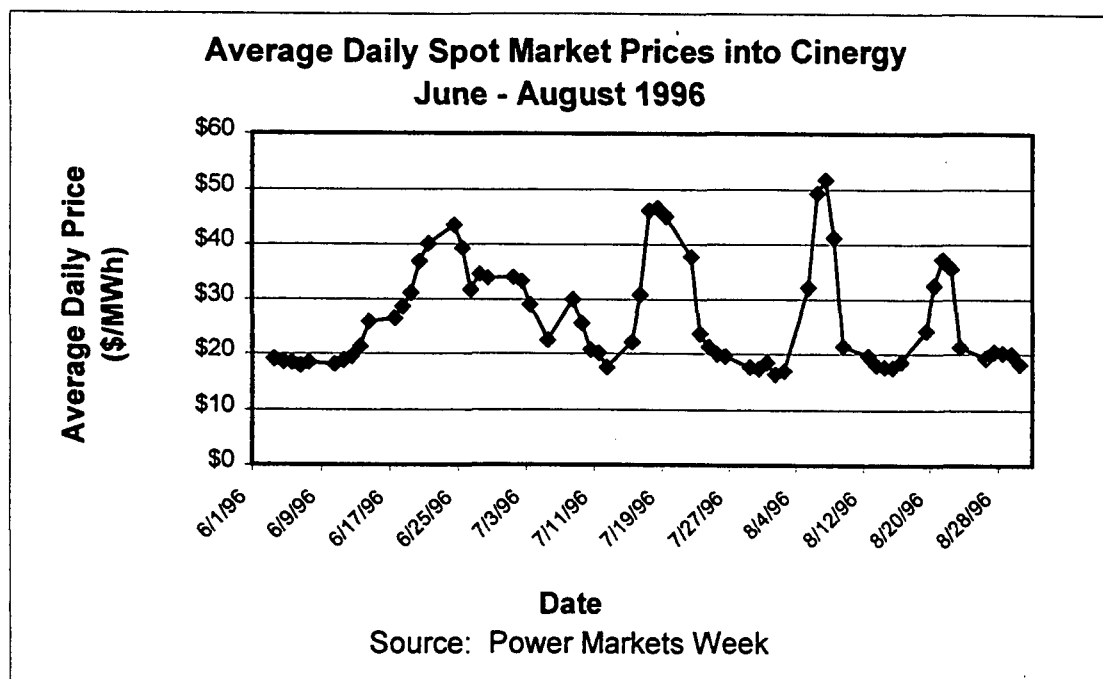


Figure 2

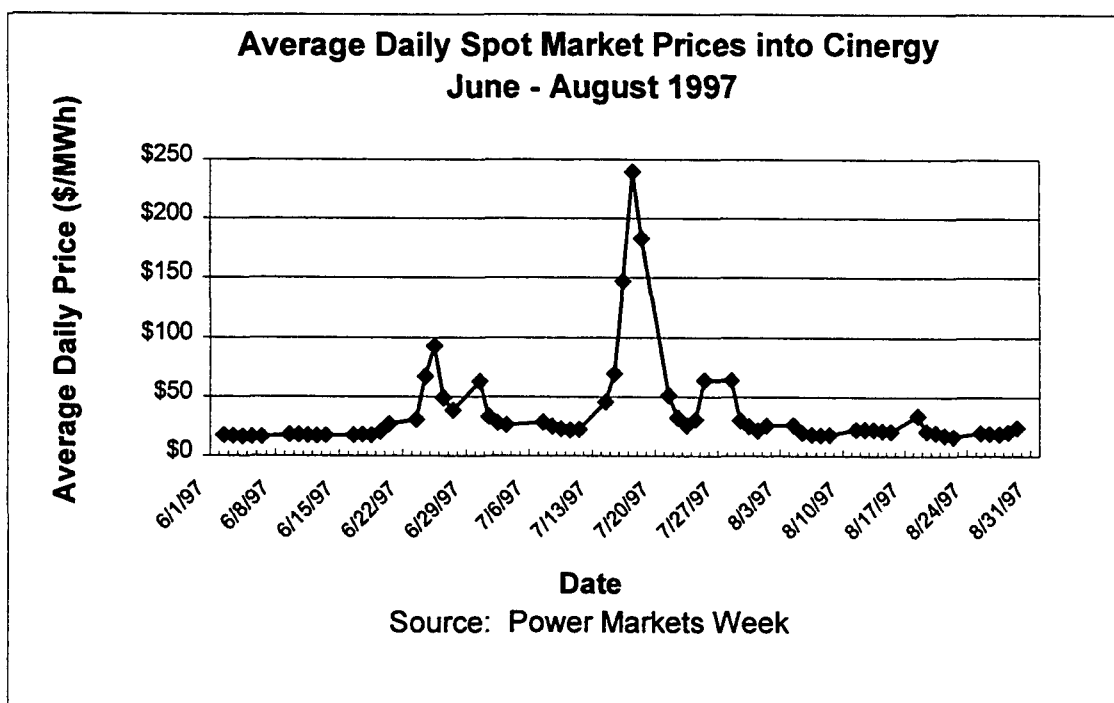


Figure 3

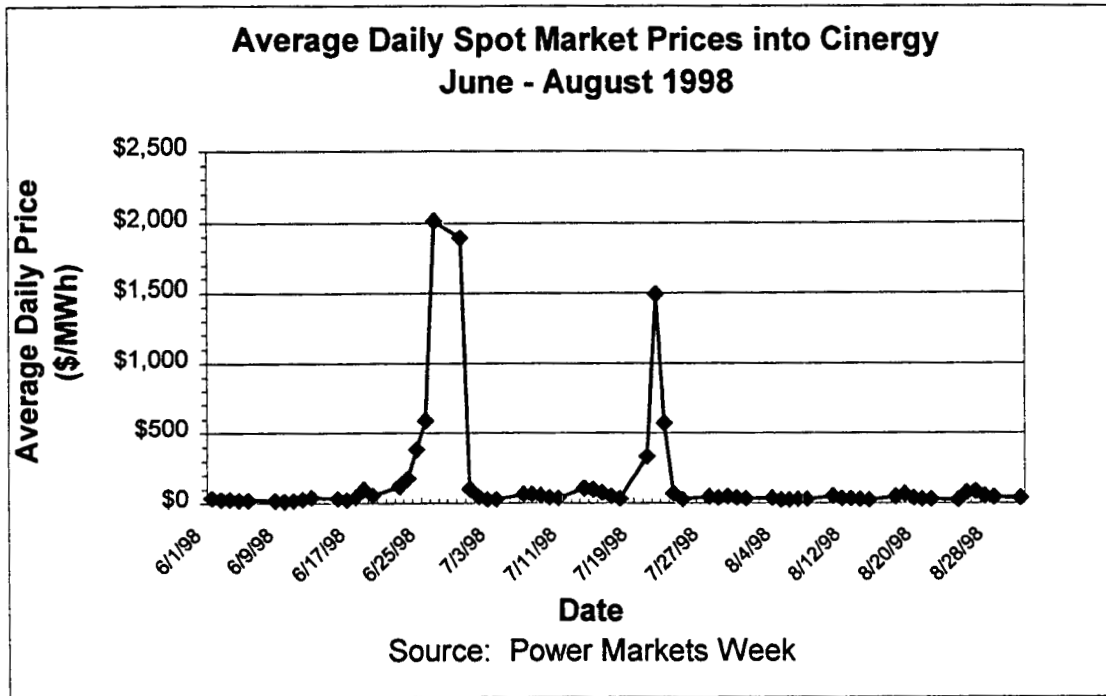


Figure 4

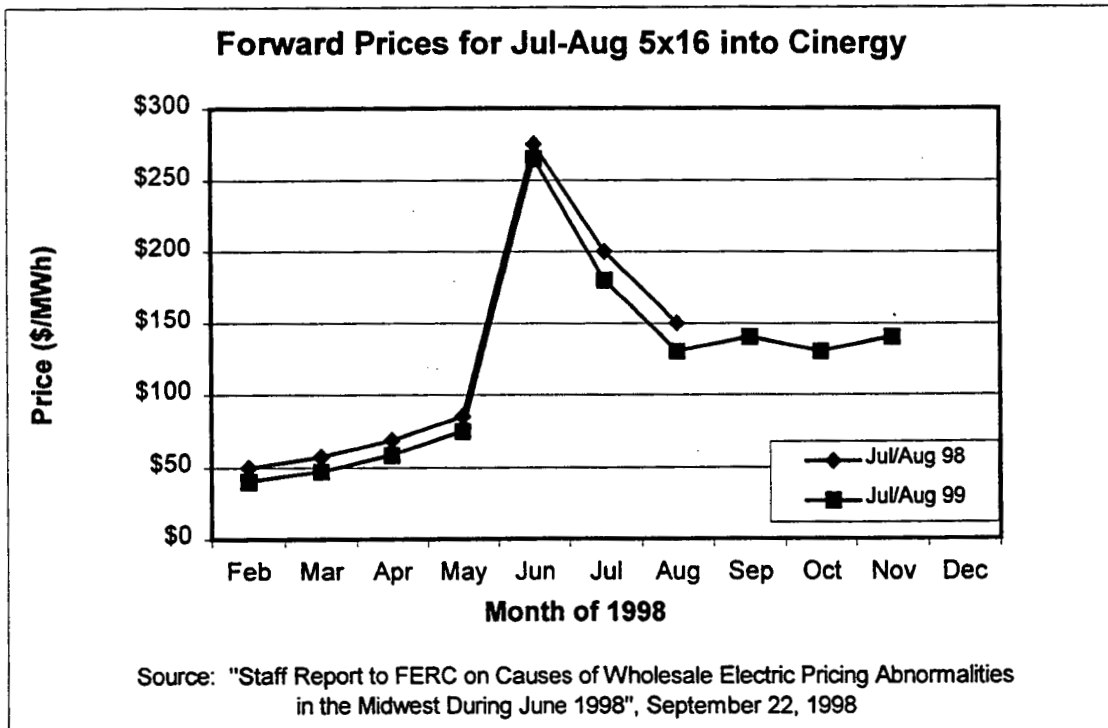
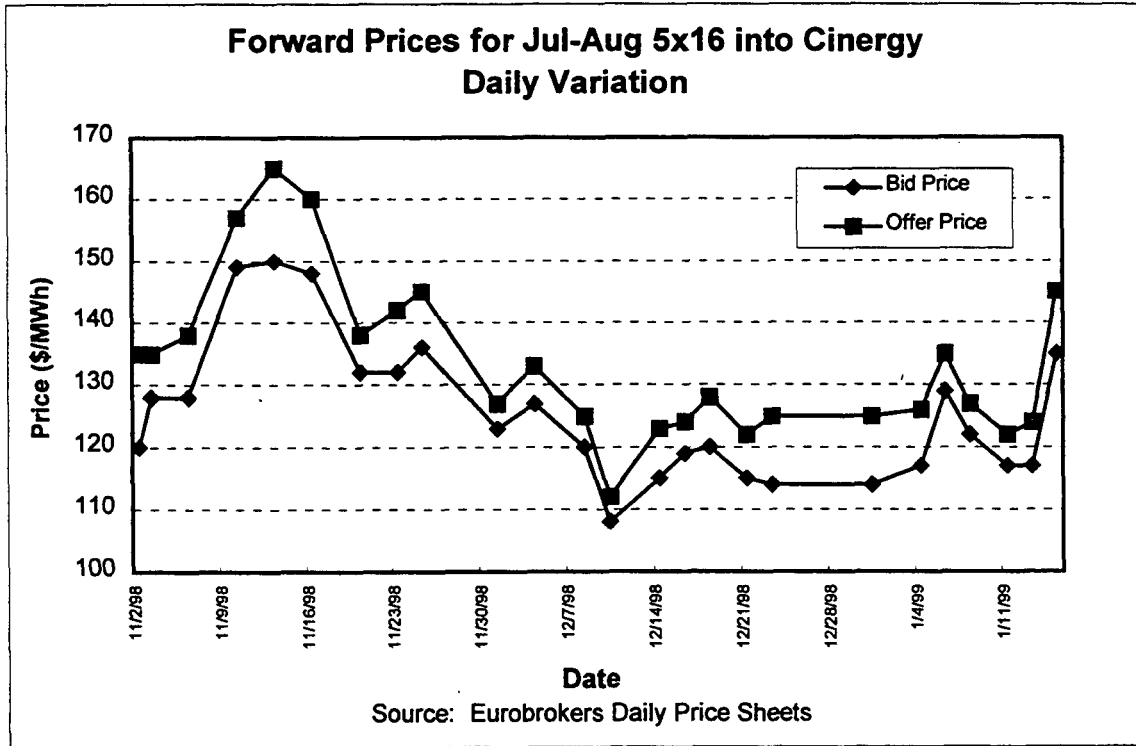


Figure 5



Appendix A

Data Items Used in Generation Planning Models

DATA ITEMS USED IN GENERATION PLANNING MODELS

Existing System Data (KU & LG&E)

The PROSYM computer programs are used to model the joint LG&E and KU generating system, which includes generating units and purchases. To properly model the purchases from Owensboro Municipal Utilities' (OMU), a detailed model of OMU's generating system is also needed. The following sections outline the information and the sources of the information used in the programs to model LGE&E, KU and OMU generating systems.

Data for PROSYM

1. Base Year - 1998
2. Study Period - 1999 to 2027
3. Economic Assumptions

Revenue requirements are determined on an annual basis and discounted to the base year giving a present value of revenue requirements. Discounting is performed using a discount rate, which is assumed to remain constant for all years.

4. Financial Parameters:
 - a. Combined Cost of Capital: 9.56%
 - b. KU Cost of Capital: 9.70%
 - c. LGE Cost of Capital: 9.45%
 - d. KU Fixed Charge Rate: 12.59%
 - e. LGE Fixed Charge Rate: 12.28%
 - f. Capital Cost Escalation Rate: 3.00%
 - g. Fixed & Variable O&M Escalation Rate: 3.00%
 - h. Combined Federal and State Tax Rate: 40.36%

5. Retirements

The operating life of all existing and generic units is extended beyond the end of the study period. (No retirements.)

6. Spot Market Purchases - See Table 1

Spot Market Purchases are based on the expected cost of emergency purchases, for the hours for which energy needs exist as determined by the simulation. This assumes purchases of this type will be from peaking units at "peaking" market price. On-Peak market hourly prices are calculated as 4 times the given On-Peak (5x16) value in Table 1 for any month. Off-Peak market hourly prices are calculated as 2 times the given Off-Peak (5x8,2x24) value in Table 1 for any month. (Prices are escalated at 4% annually after 2003.)

7. Demand and Energy Forecast - See Table 2

Combined KU and LG&E Demand and Energy Forecast (1999-2027) as compiled on 7/15/98.

8. Demand Side Management

DSM consideration is imbedded in the Demand Forecast for 1999-2027.

9. Hourly Loads

Hourly loads were provided by Forecasting & Load Research at the same time as the Demand & Energy forecast.

10. LG&E and KU Unit Data

a. Outage Rates - See Table 3

The EFORs shown include maintenance-out hours for 1998.

b. Heat Rates - See Table 4

LG&E and KU Unit Heat Rate Data as of September 1998. Values shown represent average HHV full load heat rates.

c. Maintenance Schedules - See Table 5

Maintenance inputs were determined by reviewing the combined LG&E and KU maintenance schedule as of September 1998.

11. OMU Unit Data

a. Installed Capacity:

OMU (Smith Unit 1): 140
OMU (Smith Unit 2): 274

b. 1998 Equivalent Forced Outage Rate (including maintenance-out hours)

OMU (Smith Unit 1): 10.09 %
OMU (Smith Unit 2): 6.69 %

c. Heat Rates

OMU (Smith Unit 1): 10,463 Btu/kWh
OMU (Smith Unit 2): 10,652 Btu/kWh

d. Heat Content of Fuel: 11,209 Btu/lb.

e. Maintenance Schedules - See Table 5

Maintenance inputs were determined by reviewing OMU's maintenance schedule and actual historical data.

f. OMU Scrubber (Unit 1 & 2) was modeled with a removal efficiency of 96%.

12. Fixed Purchases

a. Contract Demand

EEInc: 200 MW in each year, 1999-2027

CIN: 110 MW in January and February of 1999 (modeled as an economy purchase).

b. Full Load Heat Rate

EEInc: 10,500 Btu/kWh

c. Heat Content of Fuel

EEInc.: 10,800 Btu/lb.

d. Demand and Energy Cost

CIN: Energy \$31.75/MWH, Demand \$1.50/kW-month in January and February 1999

e. Maintenance

EEInc: A 33 MW derate for 13 weeks in the spring and fall each year.

TABLE 1

On-Peak (5x16) Market Prices (\$/MWH)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1999	34.00	34.00	27.00	26.00	27.00	50.00	100.00	100.00	36.00	25.00	25.50	28.75
2000	34.00	34.00	27.00	26.00	27.00	50.00	100.00	100.00	36.00	25.00	25.50	28.75
2001	34.00	34.00	27.00	26.00	27.00	50.00	100.00	100.00	36.00	25.00	25.50	28.75
2002	34.00	34.00	27.00	26.00	27.00	50.00	100.00	100.00	36.00	25.00	25.50	28.75
2003	34.00	34.00	27.00	26.00	27.00	50.00	100.00	100.00	36.00	25.00	25.50	28.75
2004	35.36	35.36	28.08	27.04	28.08	52.00	104.00	104.00	37.44	26.00	26.52	29.90
2005	36.77	36.77	29.20	28.12	29.20	54.08	108.16	108.16	38.94	27.04	27.58	31.10
2006	38.25	38.25	30.37	29.25	30.37	56.24	112.49	112.49	40.50	28.12	28.68	32.34
2007	39.78	39.78	31.59	30.42	31.59	58.49	116.99	116.99	42.11	29.25	29.83	33.63
2008	41.37	41.37	32.85	31.63	32.85	60.83	121.67	121.67	43.80	30.42	31.02	34.98
2009	43.02	43.02	34.16	32.90	34.16	63.27	126.53	126.53	45.55	31.63	32.27	36.38
2010	44.74	44.74	35.53	34.21	35.53	65.80	131.59	131.59	47.37	32.90	33.56	37.83
2011	46.53	46.53	36.95	35.58	36.95	68.43	136.86	136.86	49.27	34.21	34.90	39.35
2012	48.39	48.39	38.43	37.01	38.43	71.17	142.33	142.33	51.24	35.58	36.29	40.92
2013	50.33	50.33	39.97	38.49	39.97	74.01	148.02	148.02	53.29	37.01	37.75	42.56
2014	52.34	52.34	41.57	40.03	41.57	76.97	153.95	153.95	55.42	38.49	39.26	44.26
2015	54.44	54.44	43.23	41.63	43.23	80.05	160.10	160.10	57.64	40.03	40.83	46.03
2016	56.61	56.61	44.96	43.29	44.96	83.25	166.51	166.51	59.94	41.63	42.46	47.87
2017	58.88	58.88	46.76	45.02	46.76	86.58	173.17	173.17	62.34	43.29	44.16	49.79
2018	61.23	61.23	48.63	46.82	48.63	90.05	180.09	180.09	64.83	45.02	45.92	51.78
2019	63.68	63.68	50.57	48.70	50.57	93.65	187.30	187.30	67.43	46.82	47.76	53.85
2020	66.23	66.23	52.59	50.65	52.59	97.40	194.79	194.79	70.12	48.70	49.67	56.00
2021	68.88	68.88	54.70	52.67	54.70	101.29	202.58	202.58	72.93	50.65	51.66	58.24
2022	71.63	71.63	56.88	54.78	56.88	105.34	210.68	210.68	75.85	52.67	53.72	60.57
2023	74.50	74.50	59.16	56.97	59.16	109.56	219.11	219.11	78.88	54.78	55.87	62.99
2024	77.48	77.48	61.53	59.25	61.53	113.94	227.88	227.88	82.04	56.97	58.11	65.51
2025	80.58	80.58	63.99	61.62	63.99	118.50	236.99	236.99	85.32	59.25	60.43	68.14
2026	83.80	83.80	66.55	64.08	66.55	123.24	246.47	246.47	88.73	61.62	62.85	70.86
2027	87.15	87.15	69.21	66.65	69.21	128.17	256.33	256.33	92.28	64.08	65.36	73.69

Off-Peak (5x8,2x24) Market Prices (\$/MWH)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1999	18.00	18.00	17.00	16.00	18.00	20.00	25.00	25.00	19.00	18.00	18.00	18.00
2000	18.00	18.00	17.00	16.00	18.00	20.00	25.00	25.00	19.00	18.00	18.00	18.00
2001	18.00	18.00	17.00	16.00	18.00	20.00	25.00	25.00	19.00	18.00	18.00	18.00
2002	18.00	18.00	17.00	16.00	18.00	20.00	25.00	25.00	19.00	18.00	18.00	18.00
2003	18.00	18.00	17.00	16.00	18.00	20.00	25.00	25.00	19.00	18.00	18.00	18.00
2004	18.72	18.72	17.68	16.64	18.72	20.80	26.00	26.00	19.76	18.72	18.72	18.72
2005	19.47	19.47	18.39	17.31	19.47	21.63	27.04	27.04	20.55	19.47	19.47	19.47
2006	20.25	20.25	19.12	18.00	20.25	22.50	28.12	28.12	21.37	20.25	20.25	20.25
2007	21.06	21.06	19.89	18.72	21.06	23.40	29.25	29.25	22.23	21.06	21.06	21.06
2008	21.90	21.90	20.68	19.47	21.90	24.33	30.42	30.42	23.12	21.90	21.90	21.90
2009	22.78	22.78	21.51	20.25	22.78	25.31	31.63	31.63	24.04	22.78	22.78	22.78
2010	23.69	23.69	22.37	21.05	23.69	26.32	32.90	32.90	25.00	23.69	23.69	23.69
2011	24.63	24.63	23.27	21.90	24.63	27.37	34.21	34.21	26.00	24.63	24.63	24.63
2012	25.62	25.62	24.20	22.77	25.62	28.47	35.58	35.58	27.04	25.62	25.62	25.62
2013	26.64	26.64	25.16	23.68	26.64	29.60	37.01	37.01	28.12	26.64	26.64	26.64
2014	27.71	27.71	26.17	24.63	27.71	30.79	38.49	38.49	29.25	27.71	27.71	27.71
2015	28.82	28.82	27.22	25.62	28.82	32.02	40.03	40.03	30.42	28.82	28.82	28.82
2016	29.97	29.97	28.31	26.64	29.97	33.30	41.63	41.63	31.64	29.97	29.97	29.97
2017	31.17	31.17	29.44	27.71	31.17	34.63	43.29	43.29	32.90	31.17	31.17	31.17
2018	32.42	32.42	30.62	28.82	32.42	36.02	45.02	45.02	34.22	32.42	32.42	32.42
2019	33.71	33.71	31.84	29.97	33.71	37.46	46.82	46.82	35.59	33.71	33.71	33.71
2020	35.06	35.06	33.11	31.17	35.06	38.96	48.70	48.70	37.01	35.06	35.06	35.06
2021	36.46	36.46	34.44	32.41	36.46	40.52	50.65	50.65	38.49	36.46	36.46	36.46
2022	37.92	37.92	35.82	33.71	37.92	42.14	52.67	52.67	40.03	37.92	37.92	37.92
2023	39.44	39.44	37.25	35.06	39.44	43.82	54.78	54.78	41.63	39.44	39.44	39.44
2024	41.02	41.02	38.74	36.46	41.02	45.58	56.97	56.97	43.30	41.02	41.02	41.02
2025	42.66	42.66	40.29	37.92	42.66	47.40	59.25	59.25	45.03	42.66	42.66	42.66
2026	44.36	44.36	41.90	39.44	44.36	49.29	61.62	61.62	46.83	44.36	44.36	44.36
2027	46.14	46.14	43.58	41.01	46.14	51.27	64.08	64.08	48.70	46.14	46.14	46.14

TABLE 2. KU and LG&E Demand & Energy Forecast		
Year	LG&E / KU Peak Demand (MW)	LG&E / KU Forecast Energy (GWH)
1999	6132	30961
2000	6313	31701
2001	6427	32332
2002	6552	33003
2003	6689	33694
2004	6849	34447
2005	6995	35064
2006	7127	35699
2007	7258	36353
2008	7391	37076
2009	7534	37661
2010	7696	38321
2011	7852	38928
2012	7970	39605
2013	8090	40159
2014	8217	40754
2015	8350	41362
2016	8512	42060
2017	8632	42623
2018	8748	43260
2019	8865	43929
2020	9008	44665
2021	9152	45216
2022	9304	45847
2023	9425	46443
2024	9527	47124
2025	9641	47618
2026	9767	48182
2027	9908	48764

TABLE 3.
1998 OUTAGE RATE SUMMARY

Unit	Winter Capability	Summer Derate	Summer Capability	Minimum Block	1998		
					FOR	EFOR	PFOR
Brown 1	107	2	105	67	3.10%	5.00%	5.25%
Brown 2	170	2	168	84	2.90%	5.10%	4.40%
Brown 3	434	0	434	194	6.30%	7.50%	2.17%
Brown 8	119	9	110	55	7.00%	7.00%	0.00%
Brown 9	120	10	110	55	7.00%	7.00%	0.00%
Brown 10	123	13	110	55	7.00%	7.00%	0.00%
Brown 11	122	12	110	55	7.00%	7.00%	0.00%
Ghent 1	487	11	476	226	6.00%	7.80%	3.43%
Ghent 2	516	7	509	234	3.50%	4.00%	0.93%
Ghent 3	506	8	498	218	4.40%	4.70%	0.53%
Ghent 4	491	6	485	225	4.00%	4.20%	0.37%
G Riv 1	29	3	26	29	35.50%	35.50%	0.00%
G Riv 2	30	3	27	30	35.50%	35.50%	0.00%
G Riv 3	72	1	71	34	6.00%	6.30%	0.58%
G Riv 4	111	3	108	51	13.50%	15.90%	4.55%
Pinvl 3	33	1	32	18	4.40%	4.40%	0.00%
Tyrone1	30	3	27	27	2.50%	2.50%	NA
Tyrone2	33	2	31	31	9.10%	9.10%	NA
Tyrone3	73	1	72	34	5.20%	7.50%	4.36%
Dix 1-3	24	0	24	24	1.80%	1.80%	0.00%
Haefl-3	59	9	50	59	16.50%	16.50%	0.00%
Cane Run 4			155	53	11.40%	12.80%	2.13%
Cane Run 5			168	63	17.00%	20.90%	6.24%
Cane Run 6			240	81	18.20%	21.50%	4.98%
Mill Creek 1			303	77	10.20%	12.80%	3.49%
Mill Creek 2			301	74	10.70%	13.10%	3.18%
Mill Creek 3			386	158	7.80%	9.50%	2.88%
Mill Creek 4			480	155	8.00%	10.40%	3.54%
Trimble 1			371	137	3.70%	8.60%	7.77%
Cane Run 11			16	0	53.00%	53.00%	0.00%
Paddys Run 11			17	0	19.00%	19.00%	0.00%
Paddys Run 12			26	0	56.00%	56.00%	0.00%
Waterside 7			17	0	55.00%	55.00%	0.00%
Waterside 8			16	0	48.00%	48.00%	0.00%
Zorn 1			16	0	23.00%	23.00%	0.00%
Smith 1	139	0	139	80	8.09%	10.09%	4.71%
Smith 2	269	0	269	120	4.69%	6.69%	3.61%
EEI	200	0	200	100	0.47%	6.49%	12.04%
Cinergy	110	0	110	110			NA

Includes modeling of maintenance-out hours; actual EFOR's are lower

TABLE 4.

Unit Heat Rate Data	
Unit Name	Average Heat Rate at Full Load (Btu/kWh)
GHENT 1	10,138
GHENT 2	10,033
GHENT 3	10,154
GHENT 4	9,986
BROWN 1	10,433
BROWN 2	9,940
BROWN 3	10,086
GR RIVER 1	18,000
GR RIVER 2	18,000
GR RIVER 3	14,097
GR RIVER 4	12,037
TYRONE 1	18,000
TYRONE 2	18,000
TYRONE 3	12,934
PINEVILLE 3	12,603
HAEFFLING	18,000
BROWN 8	12,163
BROWN 9	12,163
BROWN 10	12,163
BROWN 11	12,163
SMITH 1	10,299
SMITH 2	9,986
CANE RUN 4	10,452
CANE RUN 5	10,130
CANE RUN 6	9,995
MILL CREEK 1	10,447
MILL CREEK 2	10,586
MILL CREEK 3	10,262
MILL CREEK 4	10,102
TRIMBLE 1	10,033
CANE RUN 11	18,000
PADDYS RN 11	18,000
PADDYS RN 12	18,000
WATERSIDE 7	17,000
WATERSIDE 8	17,000
ZORN 1	18,000

TABLE 5.

KU and LG&E Unit Maintenance: Scheduled Out (Weeks)

Year	GH 1	GH 2	GH 3	GH 4	BR 1	BR 2	BR 3	GR 3	GR 4	GR 12	TY 12	TY 3	PN 3	S M1	S M2	CR 4	CR 5	CR 6	MC 1	MC 2	MC 3	MC 4	TC 1
1999	3	4	3	3	10	3	3	3	3	0	1	1	1	3	3	4	4	4	6	0	6	0	5
2000	3	3	3	8	3	3	3	3	3	0	1	1	1	3	3	4	4	4	0	8	4	4	2
2001	8	3	3	3	3	8	3	3	3	0	1	1	1	3	8	0	8	0	8	4	0	0	5
2002	3	3	8	3	3	3	3	8	3	0	1	1	1	3	3	4	4	4	0	8	8	4	2
2003	3	8	3	3	3	3	3	3	8	0	1	1	8	8	3	0	0	8	4	0	4	4	9
2004	3	3	3	3	3	3	8	3	3	0	1	1	1	3	3	4	4	0	3	4	0	0	4
2005	3	3	3	3	3	3	3	3	3	0	1	1	1	3	3	8	0	4	1	4	4	8	0
2006	3	3	3	8	8	3	3	3	3	0	1	1	1	3	3	5	4	0	4	0	4	4	4
2007	8	3	3	3	3	3	3	3	3	0	1	1	1	3	3	0	8	4	0	4	0	2	4
2008	3	3	8	3	3	8	3	8	3	0	1	1	1	3	8	4	3	4	8	0	4	1	8
2009	3	8	3	3	3	3	3	3	8	0	1	1	1	3	3	4	0	3	4	0	0	4	4
2010	3	3	3	3	3	3	8	3	3	0	1	1	1	8	3	0	4	1	0	4	8	4	3
2011	3	3	3	3	3	3	3	3	3	0	1	1	1	3	3	4	4	8	4	4	4	0	5
2012	3	3	3	8	3	3	3	3	3	0	1	1	8	3	3	0	0	3	4	0	4	8	4
2013	8	3	3	3	8	3	3	3	3	0	1	1	1	3	3	8	4	0	0	4	0	4	3
2014	3	3	8	3	3	8	3	8	3	0	1	1	1	3	3	4	8	4	4	4	4	0	1
2015	3	8	3	3	3	3	3	3	8	0	1	1	1	3	8	4	1	0	8	0	3	4	4
2016	3	3	3	3	3	3	8	3	3	0	1	8	1	3	3	0	4	4	0	8	1	4	3
2017	3	3	3	3	3	3	3	3	3	0	1	1	1	8	3	4	4	4	4	4	8	0	1
2018	3	3	3	8	3	3	3	3	3	0	1	1	1	3	3	4	0	0	4	0	2	4	8
2019	8	3	3	3	3	3	3	3	3	0	1	1	1	3	3	0	4	8	3	4	1	0	4
2020	3	3	8	3	3	8	3	8	3	0	1	1	8	3	3	8	3	4	1	4	4	8	0
2021	3	8	3	3	8	3	3	3	8	0	1	1	1	3	3	4	1	0	4	0	3	4	4
2022	3	3	3	3	3	3	8	3	3	0	1	1	1	3	8	0	8	4	0	4	1	4	3
2023	3	3	3	3	3	3	3	3	3	0	1	1	1	3	3	4	2	4	8	8	4	0	1
2024	3	3	3	8	3	3	3	3	3	0	1	8	1	8	3	0	2	0	4	0	0	4	4
2025	8	3	3	3	3	3	3	3	3	0	1	1	1	3	3	4	4	4	0	4	11	4	0
2026	3	3	8	3	3	8	3	8	3	0	1	1	1	3	3	4	4	8	4	4	1	0	8
2027	3	8	3	3	8	3	3	1	8	1	1	1	8	3	3	8	4	0	4	4	4	8	4

Appendix B

Fixed Charge Rate Data

LG&E Fixed Charge Rate Data

IN-SERVICE COST	100.00	COST OF REMOVAL	0.00
BOOK LIFE (YRS)	30	TAX LIFE (YRS)	15
CONSTRUCTION YEARS (10 MAX)	2	CAPITAL ESC RATE (%)	0.00
ANNUAL EXPEND (%)	50 50 0 0 0 0 0 0 0 0	GENERATION PROJECT? (Y OR N)	Y
ELIGIBLE FOR CWIP	100.00		
AFUDC DATA (%)			
EQUITY		RATIO	COST
DEBT		0.00	0.00
FINANCIAL DATA (%)			
PREFERRED STOCK		6.66	4.98
COMMON STOCK		48.19	12.50
DEBT		45.15	6.86
WEIGHTED AVERAGE COST OF CAPITAL			9.45
TAX RATES (%)			
INCOME	40.36	GROSS RECEIPTS	00.00
AD-VALOREM	0.15	CAPITALIZED INT	0.00
INSURANCE RATE (%) 0.035			

TAX DEPRECIATION METHOD -3- DEC BAL RATE -1.50-

1 = STRAIGHT LINE
 2 = DECLINING BALANCE
 3 = DECLINING SWITCH TO STRAIGHT LINE
 4 = SUM OF YEARS DIGITS
 5 = SUM OF YEARS DIGITS SWITCH TO STRAIGHT LINE
 6 = ACCRELATED COST RECOVERY SYSTEM
 7 = SINKING FUND

CONSTRUCTION PERIOD

YR	CONST BAL	AFUDC DEBT	AFUDC EQTY	ACCUM AFUDC	ACCUM CAP INT	CONST RATE BASE	ACCUM TAX		EQTY RETN	DEBT RETN	TAX PAID	REV REQ	DISC RATE	ACCUM FV OF	
							DEFR	DEFR						REV	REV
1	50.00	0.00	0.00	0.00	0.00	50.00	0.00	0.00	3.18	1.55	2.15	6.88	1.095	7.53	7.53
2	100.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	3.18	1.55	2.15	6.88	1.000	6.88	14.40

IN-SERVICE PERIOD

YR	INVEST	UNRCVD INV BOOK	UNRCVD DEPR TYPE	UNRCVD INV TAX	TAX DEPR	TAX DEFR	TAX DEFR	ACUM TAX DEFR	EQTY RETN	DEBT RETN	TAX PAID	AD VAL	INS COST	REV REQ	DISC RATE	PV OF REV REQ	ACCUM PV OF REV REQ	PROJ TO DATE FCR
1	100.00	100.00	1.67	2	100.00	5.00	1.35	1.35	3.08	1.50	0.74	0.08	0.02	8.43	1.000	8.43	22.83	22.83
2	0.00	98.33	3.33	2	95.00	9.50	2.49	3.83	5.79	2.82	1.43	0.15	0.04	16.05	0.914	14.67	37.50	19.60
3	0.00	95.00	3.33	2	85.50	8.55	2.11	5.94	5.45	2.66	1.58	0.14	0.04	15.30	0.835	12.77	50.27	18.29
4	0.00	91.67	3.33	2	76.95	7.69	1.76	7.70	5.12	2.50	1.71	0.14	0.04	14.60	0.763	11.13	61.40	17.49
5	0.00	88.33	3.33	2	69.25	6.93	1.45	9.15	4.82	2.35	1.81	0.13	0.04	13.93	0.697	9.71	71.11	16.90
6	0.00	85.00	3.33	2	62.33	6.23	1.17	10.32	4.53	2.21	1.90	0.13	0.04	13.31	0.637	8.47	79.58	16.43
7	0.00	81.67	3.33	1	56.10	5.90	1.04	11.36	4.26	2.07	1.84	0.12	0.04	12.70	0.582	7.39	86.97	16.03
8	0.00	78.33	3.33	1	50.19	5.90	1.04	12.40	3.98	1.94	1.65	0.12	0.04	12.10	0.531	6.43	93.40	15.68
9	0.00	75.00	3.33	1	44.29	5.90	1.04	13.43	3.70	1.80	1.47	0.11	0.04	11.49	0.485	5.58	98.98	15.36
10	0.00	71.67	3.33	1	38.38	5.90	1.04	14.47	3.42	1.67	1.28	0.11	0.04	10.88	0.444	4.83	103.81	15.07
11	0.00	68.33	3.33	1	32.48	5.90	1.04	15.51	3.15	1.53	1.09	0.10	0.04	10.28	0.405	4.17	107.97	14.81
12	0.00	65.00	3.33	1	26.57	5.90	1.04	16.55	2.87	1.40	0.90	0.10	0.04	9.67	0.370	3.58	111.55	14.56
13	0.00	61.67	3.33	1	20.67	5.90	1.04	17.59	2.59	1.26	0.71	0.09	0.04	9.07	0.338	3.07	114.62	14.33
14	0.00	58.33	3.33	1	14.76	5.90	1.04	18.62	2.31	1.13	0.53	0.09	0.04	8.46	0.309	2.61	117.23	14.11
15	0.00	55.00	3.33	1	8.86	5.90	1.04	19.66	2.03	0.99	0.34	0.08	0.04	7.85	0.282	2.22	119.45	13.90
16	0.00	51.67	3.33	1	2.95	2.95	-0.15	19.51	1.83	0.89	1.39	0.08	0.04	7.41	0.258	1.91	121.36	13.71
17	0.00	48.33	3.33	0	0.00	0.00	-1.35	18.16	1.71	0.83	2.50	0.07	0.04	7.13	0.236	1.68	123.04	13.54
18	0.00	45.00	3.33	0	0.00	0.00	-1.35	16.82	1.58	0.77	2.41	0.07	0.04	6.85	0.215	1.48	124.52	13.39
19	0.00	41.67	3.33	0	0.00	0.00	-1.35	15.47	1.45	0.71	2.33	0.06	0.04	6.58	0.197	1.29	125.81	13.25
20	0.00	38.33	3.33	0	0.00	0.00	-1.35	14.13	1.33	0.65	2.24	0.06	0.04	6.30	0.180	1.13	126.95	13.12
21	0.00	35.00	3.33	0	0.00	0.00	-1.35	12.78	1.20	0.58	2.16	0.05	0.04	6.02	0.164	0.99	127.93	13.00
22	0.00	31.67	3.33	0	0.00	0.00	-1.35	11.44	1.07	0.52	2.07	0.05	0.04	5.74	0.150	0.86	128.80	12.89
23	0.00	28.33	3.33	0	0.00	0.00	-1.35	10.09	0.95	0.46	1.99	0.04	0.04	5.46	0.137	0.75	129.54	12.79
24	0.00	25.00	3.33	0	0.00	0.00	-1.35	8.74	0.82	0.40	1.90	0.04	0.04	5.18	0.125	0.65	130.19	12.70
25	0.00	21.67	3.33	0	0.00	0.00	-1.35	7.40	0.69	0.34	1.82	0.03	0.04	4.90	0.114	0.56	130.75	12.61
26	0.00	18.33	3.33	0	0.00	0.00	-1.35	6.05	0.57	0.28	1.73	0.03	0.04	4.63	0.105	0.48	131.24	12.53
27	0.00	15.00	3.33	0	0.00	0.00	-1.35	4.71	0.44	0.22	1.64	0.02	0.04	4.35	0.096	0.42	131.65	12.46
28	0.00	11.67	3.33	0	0.00	0.00	-1.35	3.36	0.32	0.15	1.56	0.02	0.04	4.07	0.087	0.36	132.01	12.39
29	0.00	8.33	3.33	0	0.00	0.00	-1.35	2.02	0.19	0.09	1.47	0.01	0.04	3.79	0.080	0.30	132.31	12.32
30	0.00	5.00	3.33	0	0.00	0.00	-1.35	0.67	0.06	0.03	1.39	0.01	0.04	3.51	0.073	0.26	132.57	12.27
31	0.00	1.67	1.67	0	0.00	0.00	-0.67	0.00	-0.00	-0.00	0.67	0.00	0.02	1.69	0.067	0.11	132.68	12.20

30 Yr Fcr = 12.28

KU Fixed Charge Rate Data

IN-SERVICE COST 100.00 COST OF REMOVAL 0.00
 BOOK LIFE (YRS) 30 TAX LIFE (YRS) 15
 CONSTRUCTION YEARS (10 MAX) 2 CAPITAL ESC RATE (%) 0.00
 ANNUAL EXPEND (%) 50 50 0 0 0 0 0 0 0 0
 ELIGIBLE FOR CWIP 90.42 GENERATION PROJECT? (Y OR N) Y

AFUDC DATA (%) RATIO COST
 EQUITY 54.70 12.04
 DEBT 45.30 6.86

FINANCIAL DATA (%) RATIO COST
 PREFERRED STOCK 3.32 4.98
 COMMON STOCK 51.38 12.50
 DEBT 45.30 6.86
 WEIGHTED AVERAGE COST OF CAPITAL 9.70

TAX RATES (%)
 INCOME 40.36 GROSS RECEIPTS 00.00
 AD-VALOREM 0.15 CAPITALIZED INT 0.00

INSURANCE RATE (%) 0.035

TAX DEPRECIATION METHOD -3- DEC BAL RATE -1.50-
 1 = STRAIGHT LINE
 2 = DECLINING BALANCE
 3 = DECLINING SWITCH TO STRAIGHT LINE
 4 = SUM OF YEARS DIGITS
 5 = SUM OF YEARS DIGITS SWITCH TO STRAIGHT LINE
 6 = ACCRELATED COST RECOVERY SYSTEM
 7 = SINKING FUND

CONSTRUCTION PERIOD

YR	CONST		AFUDC		ACCUM		CONST		ACCUM		TAX		EQT		DEBT		TAX		REV	DISC	FV OF	
	BAL	DEBT	DEBT	EQT	AFUDC	INT	BASE	DEFR	DEFR	RETN	RETN	PAID	PAID	RETN	RETN	REQ	REQ	REV			REV	
1	50.00	0.08	0.16	0.24	0.00	45.18	0.03	0.03	2.98	1.40	2.12	6.54	1.097	7.17	7.17							
2	100.00	0.12	0.25	0.61	0.00	90.35	0.05	0.08	2.98	1.40	2.18	6.61	1.000	6.61	13.78							

IN-SERVICE PERIOD

YR	INVEST	UNRCVD		TAX UNRCVD		ACUM		EQT	DEBT	TAX	VAL	INS	REV	DISC	FV OF		ACCUM	PROJ
		INV	BOOK	DEPR	INV	TAX	TAX								DEFR	DEFR		
1	100.61	100.61	1.68	2	100.00	5.00	1.34	1.42	3.21	1.52	0.83	0.08	0.02	8.68	1.000	8.68	22.46	22.46
2	0.00	98.93	3.35	2	95.00	9.50	2.49	3.91	6.04	2.85	1.61	0.15	0.04	16.52	0.912	15.06	37.52	19.63
3	0.00	95.58	3.35	2	85.50	8.55	2.10	6.01	5.68	2.68	1.75	0.14	0.04	15.74	0.831	13.08	50.60	18.45
4	0.00	92.22	3.35	2	76.95	7.69	1.76	7.77	5.34	2.52	1.87	0.14	0.04	15.02	0.758	11.38	61.98	17.71
5	0.00	88.87	3.35	2	69.25	6.93	1.45	9.22	5.03	2.37	1.96	0.13	0.04	14.33	0.691	9.90	71.87	17.15
6	0.00	85.52	3.35	2	62.33	6.23	1.17	10.38	4.73	2.23	2.04	0.13	0.04	13.69	0.630	8.62	80.49	16.70
7	0.00	82.16	3.35	1	56.10	5.90	1.04	11.42	4.44	2.09	1.98	0.12	0.04	13.06	0.574	7.50	87.98	16.31
8	0.00	78.81	3.35	1	50.19	5.90	1.04	12.45	4.15	1.96	1.78	0.12	0.04	12.43	0.523	6.51	94.49	15.97
9	0.00	75.46	3.35	1	44.29	5.90	1.04	13.49	3.86	1.82	1.59	0.11	0.04	11.81	0.477	5.63	100.12	15.66
10	0.00	72.10	3.35	1	38.38	5.90	1.04	14.52	3.57	1.69	1.39	0.11	0.04	11.18	0.435	4.86	104.98	15.37
11	0.00	68.75	3.35	1	32.48	5.90	1.04	15.56	3.28	1.55	1.20	0.10	0.04	10.55	0.396	4.18	109.17	15.11
12	0.00	65.39	3.35	1	26.57	5.90	1.04	16.60	2.99	1.41	1.00	0.10	0.04	9.93	0.361	3.59	112.75	14.86
13	0.00	62.04	3.35	1	20.67	5.90	1.04	17.63	2.70	1.28	0.80	0.09	0.04	9.30	0.329	3.06	115.82	14.63
14	0.00	58.69	3.35	1	14.76	5.90	1.04	18.67	2.42	1.14	0.61	0.09	0.04	8.68	0.300	2.61	118.42	14.41
15	0.00	55.33	3.35	1	8.86	5.90	1.04	19.70	2.13	1.00	0.41	0.08	0.04	8.05	0.274	2.20	120.63	14.21
16	0.00	51.98	3.35	1	2.95	2.95	-0.16	19.54	1.92	0.90	0.46	0.08	0.04	7.59	0.250	1.89	122.52	14.02
17	0.00	48.63	3.35	0	0.00	0.00	-1.35	18.20	1.78	0.84	2.56	0.07	0.04	7.30	0.228	1.66	124.18	13.85
18	0.00	45.27	3.35	0	0.00	0.00	-1.35	16.85	1.65	0.78	2.47	0.07	0.04	7.01	0.207	1.45	125.64	13.69
19	0.00	41.92	3.35	0	0.00	0.00	-1.35	15.50	1.52	0.72	2.39	0.06	0.04	6.73	0.189	1.27	126.91	13.55
20	0.00	38.57	3.35	0	0.00	0.00	-1.35	14.15	1.39	0.65	2.30	0.06	0.04	6.44	0.172	1.11	128.02	13.42
21	0.00	35.21	3.35	0	0.00	0.00	-1.35	12.81	1.26	0.59	2.21	0.05	0.04	6.15	0.157	0.97	128.99	13.31
22	0.00	31.86	3.35	0	0.00	0.00	-1.35	11.46	1.12	0.53	2.12	0.05	0.04	5.86	0.143	0.84	129.82	13.20
23	0.00	28.51	3.35	0	0.00	0.00	-1.35	10.11	0.99	0.47	2.03	0.04	0.04	5.57	0.131	0.73	130.55	13.10
24	0.00	25.15	3.35	0	0.00	0.00	-1.35	8.76	0.86	0.41	1.94	0.04	0.04	5.28	0.119	0.63	131.18	13.01
25	0.00	21.80	3.35	0	0.00	0.00	-1.35	7.41	0.73	0.34	1.85	0.03	0.04	4.99	0.109	0.54	131.72	12.92
26	0.00	18.44	3.35	0	0.00	0.00	-1.35	6.07	0.59	0.28	1.76	0.03	0.04	4.70	0.099	0.47	132.19	12.84
27	0.00	15.09	3.35	0	0.00	0.00	-1.35	4.72	0.46	0.22	1.67	0.02	0.04	4.41	0.090	0.40	132.59	12.77
28	0.00	11.74	3.35	0	0.00	0.00	-1.35	3.37	0.33	0.16	1.58	0.02	0.04	4.13	0.082	0.34	132.92	12.70
29	0.00	8.38	3.35	0	0.00	0.00	-1.35	2.02	0.20	0.09	1.49	0.01	0.04	3.84	0.075	0.29	133.21	12.64
30	0.00	5.03	3.35	0	0.00	0.00	-1.35	0.67	0.07	0.03	1.40	0.01	0.04	3.54	0.068	0.24	133.45	12.58
31	0.00	1.68	1.68	0	0.00	0.00	-0.67	0.00	0.00	0.00	0.68	0.00	0.02	1.71	0.062	0.11	133.56	12.52

30 Yr Fcr = 12.59

LG&E Marginal Cost of Capital

(1)	(2) Amount (\$000)	(3) Capitalization Component Ratios	(4) Annual Cost Rate	(5) Rate of Return (3 * 4)	(6) Tax Effect	(7) Rate of Return After Tax (5 * 6)
<i>Debt</i>	646,800	45.15%	6.86%	3.10%	0.596375	1.85%
<i>Preferred Stock</i>	95,328	6.66%	4.98%	0.33%	1	0.33%
<i>Common Equity</i>	690,278	48.19%	12.50%	6.02%	1	6.02%
	1,432,406	100.00%		9.45%		8.20%

KU Marginal Cost of Capital

(1)	(2) Amount (\$000)	(3) Capitalization Component Ratios	(4) Annual Cost Rate	(5) Rate of Return (3 * 4)	(6) Tax Effect	(7) Rate of Return After Tax (5 * 6)
<i>Debt</i>	546,351	45.30%	6.86%	3.11%	0.596375	1.85%
<i>Preferred Stock</i>	40,000	3.32%	4.98%	0.17%	1	0.17%
<i>Common Equity</i>	619,815	51.39%	12.50%	6.42%	1	6.42%
	1,206,166	100.01%		9.70%		8.44%

LG&E and KU Average Marginal Cost of Capital

(1)	(2) Amount (\$000)	(3) Capitalization Component Ratios	(4) Annual Cost Rate	(5) Rate of Return (3 * 4)	(6) Tax Effect	(7) Rate of Return After Tax (5 * 6)
<i>Debt</i>	1,193,151	45.22%	6.86%	3.10%	0.596375	1.85%
<i>Preferred Stock</i>	135,328	5.13%	4.98%	0.26%	1	0.26%
<i>Common Equity</i>	1,310,093	49.65%	12.50%	6.21%	1	6.21%
	2,638,572	100.00%		9.56%		8.31%

Appendix C

CT Model Data

CT Model Data for PROSYM

Input to PROSYM for Brown 6 & 7 CTs	
Capacity Max—Summer (MW)	164
Capacity Max-Winter (MW)	181
Full Load HHV Heat Rate (Btu/kWh)	10,500
Forced Outage Rate (%)	6.00
Maintenance Outage Rate (%)	3.85
Minimum Up Time (hours)	4
Minimum Down Time (hours)	4

Appendix D

Call Option Price Data

Call Option Price Data

Month	Hours	Volume (MW)	\$35 Call			\$100 Call		
			Premium (\$/MWh)	Premium (\$/kW-month)	Total (\$)	Premium (\$/MWh)	Premium (\$/kW-month)	Total (\$)
7/1/99								
8/1/99								
9/1/99								
10/1/99								
11/1/99								
12/1/99								
1/1/00								
2/1/00								
3/1/00								
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12/1/01								
1/1/02								
2/1/02								
3/1/02								
4/1/02								
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7/1/02								
8/1/02								
9/1/02								
10/1/02								
11/1/02								
12/1/02								

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* Option price data compiled November 1998 by Energy Marketing group.

Note that option premiums will vary based on underlying market price, strike price, volatility, interest rate and time to expiry.

Appendix E

Production Run Output Summary

Production Run Summary: KU Scenario 1

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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2026								
2027								
2028								
1998 NPV								

Notes:

- 1) 1999 contains 5 months of Fixed O&M
- 2) 1999 contains 12 months of Carrying Charges

Production Run Summary: LGE Scenario 1

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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2027								
2028								
1998 NPV								

CONFIDENTIAL INFORMATION REDACTED

Notes:

- 1) 1999 contains 5 months of Fixed O&M
- 2) 1999 contains 12 months of Carrying Charges

Production Run Summary: KU & LGE Scenario 1

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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2026								
2027								
2028								
1998 NPV								

Notes:

- 1) 1999 contains 5 months of Fixed O&M
- 2) 1999 contains 12 months of Carrying Charges

Production Run Summary: KU Scenario 2

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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1998 NPV								

Notes:

- 1) 2001 contains 6 months of Fixed O&M
- 2) 2001 contains 12 months of Carrying Charges

Production Run Summary: LGE Scenario 2

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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1998 NPV								

Notes:

- 1) 2001 contains 6 months of Fixed O&M
- 2) 2001 contains 12 months of Carrying Charges

Production Run Summary: KU & LGE Scenario 2

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
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1998 NPV								

Notes:

- 1) 2001 contains 6 months of Fixed O&M
- 2) 2001 contains 12 months of Carrying Charges

Production Run Summary: KU Scenario 3

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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1998 NPV								

CONFIDENTIAL INFORMATION REDACTED

Notes:

- 1) 2001 contains 6 months of Fixed O&M
- 2) 2001 contains 12 months of Carrying Charges

Production Run Summary: LGE Scenario 3

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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CONFIDENTIAL INFORMATION REDACTED

1998 NPV

Notes:

- 1) 2001 contains 6 months of Fixed O&M
- 2) 2001 contains 12 months of Carrying Charges

Production Run Summary: KU & LGE Scenario 3

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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1998 NPV								

Notes:

- 1) 2001 contains 6 months of Fixed O&M
- 2) 2001 contains 12 months of Carrying Charges

Production Run Summary: KU Scenario 4

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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CONFIDENTIAL INFORMATION REDACTED								
1998 NPV								

Notes:

- 1) 2002 contains 6 months of Fixed O&M
- 2) 2002 contains 12 months of Carrying Charges

Production Run Summary: LGE Scenario 4

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
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1998 NPV								

Notes:

- 1) 2002 contains 6 months of Fixed O&M
- 2) 2002 contains 12 months of Carrying Charges

Production Run Summary: KU & LGE Scenario 4

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
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1998 NPV								

Notes:

- 1) 2002 contains 6 months of Fixed O&M
- 2) 2002 contains 12 months of Carrying Charges

Production Run Summary: KU Scenario 5

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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CONFIDENTIAL INFORMATION REDACTED								
1998 NPV								

Notes:

- 1) 2002 contains 6 months of Fixed O&M
- 2) 2002 contains 12 months of Carrying Charges

Production Run Summary: LGE Scenario 5

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
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2031								
1998 NPV								

Notes:

- 1) 2002 contains 6 months of Fixed O&M
- 2) 2002 contains 12 months of Carrying Charges

Production Run Summary: KU & LGE Scenario 5

Year	Fuel Cost (\$000)	Var O&M (\$000)	Fixed O&M (\$000)	Purchases (\$000)	Sales (\$000)	Total Production Cost (\$000)	Capital Cost (\$000)	Total Revenue Requirements (\$000)
1999								
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1998 NPV								

Notes:

- 1) 2002 contains 6 months of Fixed O&M
- 2) 2002 contains 12 months of Carrying Charges

Appendix F

CT Project Budget Summary

E.W. Brown Combustion Turbine Project Budget Summary

	<u>\$000</u>
(A) Combustion Turbines	91,800
(B) Engineering, BOP Procurement, and Construction	19,850
(C) Fuel Gas Delivery System Modifications	645
(D) Water Treatment Plant	1,915
(E) Service Water System Upgrade	271
(F) Substation	600
(G) Miscellaneous	1,904
	Sub-Total 116,985
(H) Pending Items	4,767
	Total 121,752
(I) Contingency	3,248
	Total Project Cost 125,000