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The Integrating Model of the Project Independence Evaluation System.

Volume VI, *Data Documentation. Part I*

February 1979

MASTER

Prepared for:
U.S. Department of Energy
Energy Information Administration
Assistant Administrator for Applied Analysis

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EIA Perspective

This contractor report was prepared by Logistics Management Institute and provides documentation of the version of the Project Independence Evaluation System (PIES) as it existed on January 1, 1978. Since that date, PIES has evolved into what is now called the Mid Range Energy Market Model (MEMM), a major component of the Mid Range Energy Forecasting System (MEFS). Major structural changes that have occurred between January 1, 1978 and January 1, 1979, are documented in the supplemental volume entitled, "Revisions to the Midterm Energy Market Model Relating to Natural Gas Regulation, Advanced Technologies, Coal Demand and Dynamics." Together, the six volume set of documentation, plus the supplemental volume on revisions, form the most comprehensive and up-to-date version of MEMM documentation currently available, documentation which significantly surpasses in both form and content the single volume published in January, 1977.

Although this documentation has not gone through the appropriate review process and clearance procedures to be published as an EIA endorsed report, it is currently being made available in its present form as an interim measure to satisfy many outstanding requests for MEMM documentation. As this report has not been submitted to comprehensive review, EIA does not endorse any information contained herein. The documentation is presently being subjected to comprehensive review both inside and outside the Department of Energy. A contract is currently in process to update it to the version used for the 1978 Annual Report to Congress (published in July 1979). This new version of the documentation report is intended to bring the MEMM documentation into conformity with EIA's documentation standards and to respond to any issues raised as a result of the review process. The results of the latter effort will result in a set of MEMM documentation fully cleared and endorsed by EIA, available in 1980.

PREFACE

This documentation describes the Project Independence Evaluation System (PIES) Integrating Model as it existed on January 1, 1978. The complete documentation consists of six volumes describing the various aspects of the Integrating Model as follows:

- Volume I is an executive summary, providing a simple, nontechnical overview of PIES.
- Volume II is a primer, describing and illustrating the basic inputs to the PIES algorithm.
- Volume III is a user's guide, describing scenario specification and the operational procedures for running the Integrating Model.
- Volume IV is the main model documentation, describing the theoretical basis of the Integrating Model and each of the supply submodels.
- Volume V is code documentation, describing the data processing aspects of PIES: the data flow through the PIES programs, the functions performed by each program, the data inputs and outputs, and the PIES naming conventions.
- Volume VI is data documentation, containing the standard table data used for the Administrator's Report at the beginning of 1978, along with primary data sources and the office responsible. It also contains a copy of a PIES Integrating Model Report with a description of its contents.

The data and scenarios used in these volumes are those used in the 1977 Annual Report to Congress, (actually published in 1978), prepared by the Energy Information Administration. In all volumes, we refer to this report as the Administrator's Annual Report (AAR).

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I. OVERVIEW

INTRODUCTION

The purposes of this volume are to document the sources of input data to the PIES Integrating Model and to publish both the data used for the 1978 Annual Administrator's Report (AAR)¹ and a sample PIES Integrating Model Report, with a description of its contents. We have also included a discussion of the EIA energy supply and demand assumptions underlying the six scenarios used for the AAR and presented in this volume. The demand data documented are the quantities, prices, and elasticities, which are output from the Demand Model, and are input to the PIES equilibrating mechanism.

SUPPLY DATA

There are three categories of supply data in this volume: facilities, materials, and transportation. The facilities are refineries and utilities. The materials are oil, coal, natural gas, synthetics, shale, and nuclear fuel.² The third category, transportation, provides linkages between facilities and materials.

Data for these three categories are provided by numerous non-DOE sources, for example, private research firms and Governmental departments (such as the U.S. Geological Survey). The data provided by these sources are referred to as "raw data" tables. These raw data tables are formatted for the convenience of the data collecting office and do not necessarily conform to the data format and unit requirements of PIES.

The PIES preprocessors format the raw data and convert the raw data table entries into a uniform set of "standard tables."³ The standard tables contain supply data formatted for use by the PIES matrix generation program, which forms the linear

¹The EIA's first Annual Report to Congress is referred to throughout this volume as the AAR.

²Nuclear and nuclear fuel supply sectors are embedded in the utilities sector. There are no preprocessors for imports data.

³The calculations performed in the PIES preprocessors are discussed in volume IV of this documentation series.

programming matrix used by the equilibrating mechanism.⁴ Figure I-1 illustrates the flow of data from source through the standard table stage.

The supply tables contained in Chapters II and III of this volume are the computer printouts of the automated standard table documentation programs. These computer programs are external to PIES and print the standard tables with clear English headings rather than mnemonic computer coding.

EIA'S PROJECTION SERIES AND SCENARIOS

The EIA's first Annual Report to Congress contains energy supply and demand forecasts made under six sets of assumptions. These six sets of assumptions, also referred to as projection series, include five that are combinations of three macroeconomic demand scenarios (low, medium, and high demand) and three oil and gas production supply scenarios (low, medium and high domestic supply). These demand and supply scenarios are discussed below. These five projection series presuppose constant real world oil prices between 1978 and 1990. The sixth, a variant of the medium demand/medium supply projection series discussed below, assumes a 5 percent yearly rise in world oil prices for the same time period. Table I-1 lists the six projection series and their major assumptions.

Figure I-2 shows the ten possible combinations of supply/demand projection series available with our six sets of assumptions. The 1978 AAR used the six projection series indicated. These six series cover the range of PIES projections. It should be clear to the reader, however, that all of these ten supply/demand combinations as well as other scenarios are available to PIES.

⁴ A description of the PIES equilibrating mechanism is contained in Chapter II of Volume IV in this documentation series.

FIGURE I-1
PIES PREPROCESSORS

FIGURE I-2
EIA PROJECTION SERIES A THROUGH F¹

ANNUAL ECONOMIC GROWTH RATES (1975-1990)

SOURCE: VOLUME II 1977 EXECUTIVE SUMMARY OF THE
ANNUAL REPORT TO CONGRESS.
ENERGY INFORMATION ADMINISTRATION, DOE

- 1/ SERIES A THROUGH F ARE THE SIX PROJECTION
SERIES CHOSEN FOR DISCUSSION IN THE AAR.
- 2/ THE COMBINATION OF MEDIUM DEMAND/MEDIUM SUPPLY
IS SOMETIMES REFERRED TO AS THE MIDRANGE OR
"BUSINESS AS USUAL" PROJECTION SERIES.

The mid-range projection series (medium demand/medium supply) input data are displayed in Chapter II. Chapter III contains only the input data directly affected by the five alternative AAR scenarios; namely, high and low demand and supply and a 5 percent increase in world oil prices. The high and low demand tables are given. The high and low supply scenarios are illustrated with the high and low oil and gas data tables. The assumption of increasing world oil price affects the refinery input tables and the oil and gas tables. The tables also appear in Chapter III. Table I-2 summarizes the sectoral data tables affected by alternate scenarios. All other sector tables remain as depicted for the mid-range projection series of Chapter II.

TABLE I-1. EIA PROJECTION SERIES ASSUMPTIONS

<u>Projection Series</u>	<u>Demand Assumption</u>	<u>Supply Assumption</u>	<u>World Oil Price Assumption</u>	<u>Important Series Characteristic (relative to constant price assumption)</u>
A	High	High	Constant	Maximum consumption
B	High	Low	Constant	Maximum imports; Maximum relative price of energy
C	Medium	Medium	Constant	Mid-range
D	Low	High	Constant	Minimum imports; Minimum relative price of energy
E	Low	Low	Constant	Minimum Consumption
F	Medium	Medium	Increasing	Important Contingency

Source: AAR, Vol. II

TABLE I-2. SECTORS AFFECTED BY ALTERNATE SCENARIOS

<u>Scenario</u>	<u>Sector</u>
Low Supply/Low Demand	Imports Oil and Gas
Low Supply/High Demand	Imports Oil and Gas
High Supply/Low Demand	Imports Synthetics Shale Oil and Gas
High Supply/High Demand	Imports Shale Oil and Gas
Medium Supply/Medium Demand 5% Increase in World Oil Prices	Imports Refinery Oil and Gas

DEMAND DATA AND ASSUMPTIONS

Low demand is represented in PIES by the CYCLELONG macroeconomic forecast. Medium and high demand are called TRENDLONG and CEASPIRIT, respectively. These demand scenarios are taken from the Data Resources, Incorporated (DRI) econometric model. The DRI model provides macroeconomic projections used as input to the Bureau of Labor Statistics Input-Output (BLS/IO) Model. The BLS model then provides, as output, employment levels by economic sector, which are incorporated into PIES. Table I-3 lists the major assumptions underlying the DRI macroeconomic forecasts.

The EIA scenarios used to generate the tables presented in this volume assume a continuation of existing energy policies. This assumption presumes that natural gas regulation will remain in effect between now and 1990. Energy projections could vary widely if different assumptions were used.

TABLE I-3. MAJOR ASSUMPTIONS UNDERLYING DRI MACROECONOMIC FORECAST

Assumptions	CEASPIRIT	TRENDLONG	CYCLELONG
1. Fiscal Policy	Federal expenditures increase at a compound annual rate of 7.8 percent between 1977 and 1990.	Federal expenditures increase at a compound annual rate of 8.6 percent on a national income basis between 1977 and 1990.	Federal expenditures increase at a compound annual rate of 12.1 percent between 1977 and 1990.
2. Monetary Policy	<p>Money supply increases at a compound annual rate of 6.9 percent from 1977 to 1983 and 5.3 percent between 1983 and 1990.</p> <p>Prime lending rate declines almost continually from a high of 7 percent in 1978 to a low of 5.4 percent in 1990. Pattern and level of long-term yields similar to those in TRENDLONG but yields are slightly lower.</p>	<p>Narrowly defined money supply (M1) increases at a compound annual rate of 5.7 percent between 1977 and 1983 and at a 4.6 percent rate between 1983 and 1990.</p> <p>Prime lending rate ranges between 7.2 percent and 7.7 percent between 1978 and 1983. Subsequently declines gradually to 6.1 percent in 1990. A roughly similar pattern (but not level) of yields exists for long-term bonds (new AAA) after some time lag.</p>	<p>Money supply increases at a compound annual rate of 7.3 percent between 1977 and 1983 and 9.5 percent from 1983 to 1990.</p> <p>Prime lending rate increases continually to nearly 10 percent by 1982 with sharp variations thereafter between low of 6.7 percent and high of 11.3 percent. Long-term yields are substantially higher than in TRENDLONG throughout 1977-1990 reflecting higher inflation, credit crunches in 1982 and 1986, higher risks of financial instability and recurrent expansionary policies.</p>
3. Consumer Price Index (CPI)	CPI increases at annual rate of 6.4 percent in 1977, between 4.9 percent and 5.6 percent during 1978-1983, and then declines continually to 4.0 percent.	CPI increases at annual rate of 5 percent - 6 percent through 1983(except in 1977), declines continually to 4.1 percent in 1990.	CPI increases at annual rate of 7 percent during 1977-1983 and at about 8 percent thereafter, with double digit inflation in 1986 and 1987.
4. Nominal Energy Prices in the United States	Compound annual rate of increase between 1978 and 1990 is about 5 percent, declining from 10 percent in 1978 to 3.3 percent in 1990.	Compound annual rate of increase between 1978 and 1990 is 7.6 percent, declining from 16 percent in 1978 to 5.3 percent in 1990.	Compound annual rate of increase between 1978 and 1990 is 12.2 percent peaking at 17 percent in 1990.
5. Nominal Price of Imported Oil	Rates of increase similar to those in TRENDLONG through 1982. Substantially smaller rates thereafter which decline gradually from 5.2 percent in 1983 to 3.6 percent in 1990.	Rates of increase range from 7.6 percent to 8.5 percent between 1977 and 1980. Rate of increase is at constant 7.5 percent after 1980.	Rates of increase similar to those in TRENDLONG through 1979. Thereafter, rates range from 8 percent to 18 percent and usually exceed 10 percent.
6. Foreign (OECD) Growth in Industrial Production Index	<p>Growth Rates:</p> <p>1977-1980 5.5 percent</p> <p>1980-1985 4.2 percent</p> <p>1985-1990 4.0 percent</p>	<p>Growth Rates:</p> <p>1977-1980 4.2 percent</p> <p>1980-1985 5.2 percent</p> <p>1985-1990 4.4 percent</p>	<p>Growth Rates:</p> <p>1977-1980 4.2 percent</p> <p>1980-1985 4.9 percent</p> <p>1985-1990 2.7 percent</p>

Source: Data Resources, Inc., U.S. Long-Term Review, Fall 1977, and CEASPIRIT macroeconomic simulation.

SUPPLY ASSUMPTIONS - OIL AND GAS AVAILABILITIES

Oil and gas availabilities play important roles in the projection of future energy trends. As can be seen in Figure I-3, oil and gas production, in general, constitutes the bulk of domestic energy levels projected for the six EIA projection series. Tables I-4 and I-5 give oil and gas demand, supply and imports for three projection series. These three scenarios, A, C, and E, represent the range of energy supply and demand over the projection series.

Oil and gas production from mature wells in on-shore areas is expected to decline in the mid-term (now to 1990). Production from Alaska and off-shore areas is expected to offset these declines, resulting in domestic oil and gas production being maintained at current levels, as a best estimate. Import levels are expected to continue their climb, as seen in Figure I-4.

Imports of crude oil are less sensitive to changes in economic growth assumptions than are refined petroleum product imports. This is because crude oil imports are constrained by the available U.S. domestic refinery capacity and by capacity utilization rates. For the AAR, a 90 percent capacity utilization is assumed.

Petroleum products, on the other hand, are highly sensitive to economic and domestic production assumptions. Petroleum product import projections are highest (6.9 quadrillion Btu per year) for the high demand/low supply projection series, series B. They are lowest (3.2 quadrillion Btu per year) for the low demand/high supply series, series D.

This represents a drop of 54 percent from series B to series D. The corresponding decline in crude oil (19.3 to 17.0 quadrillion Btu per year) for the two series, B and D, respectively, is only 17 percent. Table I-6 gives energy production and consumption summaries in BTU's for target year 1985 for the six EIA projection series.

FIGURE I-3

VARIATIONS IN PROJECTED LEVELS OF U.S. ENERGY CONSUMPTION
AND PRODUCTION BY EIA PROJECTION SERIES A THROUGH F

SOURCE: VOLUME II 1977 EXECUTIVE SUMMARY OF THE
ANNUAL REPORT TO CONGRESS.
ENERGY INFORMATION ADMINISTRATION, DOE

FIGURE 1-4

PROJECTED U.S. PETROLEUM LIQUIDS SUPPLY

SOURCE: AAR, PROJECTION SERIES C

TABLE I-4. U. S. PETROLEUM LIQUIDS DEMAND, SUPPLY, AND IMPORTS
(Millions of Barrels per Day) *

			U.S. Total Demand	U.S. Domestic Supply **	Imports
Actual 1975			16.3	10.2	6.1
EIA Series 1985					
	Demand	Supply			
A - High	High		22.1	11.7	10.4
C - Medium	Medium		21.8	10.8	11.0
E - Low	Low		21.1	10.1	11.0
EIA Series 1990					
	Demand	Supply			
A - High	High		24.0	12.3	11.7
C - Medium	Medium		24.2	10.4	13.8
E - Low	Low		22.7	8.6	14.1
Average Annual Growth (percent)					
1960-1975 (Actual)			3.4	1.5	8.3
1975-1985 (Projected)					
	Demand	Supply			
A - High	High		3.1	1.4	5.5
C - Medium	Medium		3.0	0.6	6.1
E - Low	Low		2.6	0.8	6.1
1985-1990 (Projected)					
	Demand	Supply			
A - High	High		1.7	1.0	2.4
C - Medium	Medium		2.1	-0.8	4.6
E - Low	Low		1.5	-5.0	5.1

* In crude oil equivalents.

** Domestic supply includes production plus net gains (losses) in conversion, etc.

Source: AAR, Vol. II, Executive Summary.

TABLE I-5. U. S. NATURAL GAS DEMAND, SUPPLY, AND IMPORTS
(Trillions of Cubic Feet, Annually)

		U.S. Total Demand	U.S. Domestic Supply*	Imports
Actual 1975		19.5	18.5	1.0
EIA Series 1985				
Demand	Supply			
A - High	High	20.3	18.9	1.6
C - Medium	Medium	18.5	16.7	1.8
E - Low	Low	17.1	15.1	1.9
EIA Series 1990				
Demand	Supply			
A - High	High	19.9	17.7	2.2
C - Medium	Medium	18.7	16.2	2.5
E - Low	Low	15.4	12.8	2.6
Average Annual Growth (percent)				
1960-1975 (Actual)		3.3	3.1	12.8
1975-1985 (Projected)				
Demand	Supply			
A - High	High	0.4	0.2	4.8
C - Medium	Medium	-0.5	-1.0	6.1
E - Low	Low	-1.3	-2.0	6.6
1985-1990 (Projected)				
Demand	Supply			
A - High	High	-0.4	-1.3	8.6
C - Medium	Medium	0.2	-0.6	6.8
E - Low	Low	-2.1	-3.3	6.5

Note: Data may not add to total demand due to rounding.

* Does not include production of synthetic gas projected at 0.9 Tcf in 1985 and 1.0 Tcf to 1.2 Tcf in 1990.

TABLE I-6. 1985 ENERGY SUPPLY/DEMAND BALANCE
(Quadrillion Btu Per Year)

Projection Series:	A Actual 1975	B High Demand High Supply	C High Demand Low Supply	D Medium Demand Medium Supply	E Low Demand High Supply	F Low Demand Low Supply	High Oil Price
Domestic Production							
Crude Oil	17.9	20.3	17.7	19.0	20.3	17.7	19.5
Natural Gas							
Liquids &							
Butane	2.6	2.2	1.8	2.0	2.2	1.7	1.9
Shale Oil	0.	.2	.1	.1	.2	.1	.1
Natural Gas	19.0	19.4	16.0	17.2	19.2	15.6	17.5
Coal	14.6	23.0	23.8	23.1	22.2	22.8	23.6
Nuclear	1.8	6.2	6.2	6.2	6.2	6.2	6.2
Hydro & Geothermal	3.2	4.2	4.2	4.2	4.2	4.2	4.2
Total Domestic Production	59.1	75.5	69.8	71.8	74.5	68.3	73.0
Imports							
Crude Oil	8.7	15.5	19.3	16.5	16.0	17.5	17.0
Petroleum Products	3.8	6.6	6.9	6.7	3.2	5.7	4.3
Natural Gas	1.0	1.6	2.1	1.9	1.2	2.0	1.9
Total Imports. 13.5	23.7	28.3	25.1	20.4	25.2	23.2	
Total Supply ..	72.6	99.2	98.1	96.9	94.9	93.5	96.2
Domestic Consumption							
Oil	32.8	44.4	45.4	43.9	41.5	42.3	42.4
Natural Gas	20.0	21.0	18.1	19.1	20.4	17.6	19.4
Coal	12.8	21.1	21.9	21.2	20.3	20.9	21.7
Nuclear	1.8	6.2	6.2	6.2	6.2	6.2	6.2
Hydro & Geothermal	3.2	4.2	4.2	4.2	4.2	4.2	4.2
Total Domestic Consumption	70.6	96.9	95.8	94.6	92.6	91.2	93.9
Exports							
Coal	1.8	1.9	1.9	1.9	1.9	1.9	1.9
Refinery Loss. . . .	.2	.4	.4	.4	.4	.4	.4
Total Consumption & Exports	72.6	99.2	98.1	96.9	94.9	93.5	96.2
Domestic Consumption by Sector							
Residential.	14.7	19.3	19.0	19.0	18.9	18.6	18.6
Commercial	11.3	13.8	13.5	13.5	13.4	13.1	13.2
Industrial	26.0	42.0	41.5	40.7	39.9	39.1	40.9
Transportation ..	18.6	21.8	21.8	21.4	20.4	20.4	21.2
Total Domestic Consumption	70.8	96.9	95.8	94.6	92.6	91.2	93.9

Source: 1978 Annual Administrator's Report, Vol. II.

II. SUPPLY AND DEMAND DATA TABLES AND SOURCES FOR THE MID-RANGE SCENARIO: TARGET YEARS 1985 AND 1990

INTRODUCTION

This chapter contains supply and demand data used by the PIES Integrating Model for the mid-range scenario target years 1985 and 1990.

Primary data sources are cited at the bottom of each table. These sources are the sources of the data used to generate the data shown in the following tables, which are used in turn to generate the PIES standard tables. Taking the coal supply data as an example, the sources cited are, in general, data sources for inputs to the National Coal Model developed by a private consultant firm, ICF, Inc. The output from the National Coal Model is used as input to the PIES pre-processor to generate the PIES coal supply standard tables; thus, the data sources cited are actually sources of the input data to the National Coal Model.

Also given at the bottom of each table is the DOE office responsible for collecting and updating the data. This function does not necessarily entail collecting the primary data, but rather, collecting the raw data input to PIES, for example, obtaining the output files from the National Coal Model.

Data for nuclear fuel, imports, and shale are input directly in PIES standard table format. No satellite models are used. Sources cited for these data are the actual sources for what is in the tables.

DEMAND, PRICE AND ELASTICITY DATA

This section contains four tables showing demand point quantities and initial fuel prices for the two target years, 1985 and 1990. The column headings are the 10 demand regions. The row headings are the type of fuel used by five sectors of the economy--residential, commercial, industrial, transportation and raw material. The 12 fuels are:

electricity, liquid gas, distillate fuel, natural gas, residual fuel, gasoline, oil, naphtha, asphalt, metallurgical coal, steam coal, and jet fuel. Since each fuel is not consumed in every energy sector, the total number of rows is only 30. These 30 categories, which designate fuel by sector, we refer to as fuel types.

The two tables showing initial prices consider only 18 fuel types - those with "elastic" demands.¹ Products or fuel types with inelastic demands are not considered, since PIES assumes they are completely inelastic, and so their demand is not affected by price.

Also contained in this section are tables showing own-and cross-elasticities for each fuel type. The own-elasticities shown measure the percentage change in the quantity of a specific fuel type with respect to a percentage change in the weighted sectoral average of the prices of that fuel. For example, the own-elasticity for electricity in the residential sector is the percentage change in the quantity of electricity in the residential sector divided by the percentage change in the weighted average price of electricity in all sectors: residential, commercial, industrial, and transportation.

Cross-elasticities measure the percentage change in the quantity of a specific fuel type with respect to the weighted sectoral average price of a different fuel. An example would be the cross-elasticity of residential coal with respect to a weighted average of natural gas prices.

There are two sets of elasticity tables - one for 1985 and the other for 1990. Each set of these tables contains a separate table for each demand region. Demand (and electric utility regions) are the DOE regions shown in Figure II-1. The entries are the own - or cross-elasticities of a fuel type (given by the row name) with respect to the weighted average of a fuel's prices (the fuel being given by the column name). The nine fuels given in the column headings are those with elastic demands.

¹"Elastic" here means not perfectly inelastic.

ALASKA

FIGURE II-1
DOE REGIONS

The historical data used to determine the price and demand quantities are derived from three primary sources:

- Electricity data are taken from the Statistical Yearbook, an annual publication of the Edison Electric Institute, Washington, D.C.
- Jet fuel data are taken from newsletters and reports of the Ethyl Corporation of Houston, Texas.
- Petroleum, oil, gasoline, gas and coal data are taken from the various volumes of Mineral Industry Surveys, produced by the Bureau of Mines.

These historical data are combined with macroeconomic data from DRI to produce the price, quantity and elasticity projections for 1985 and 1990 that appear in the following tables. DRI obtains its data from standard sources; for example, population data from the Census Bureau, value added, labor and labor productivity data from the Bureau of Labor Statistics, and so forth.

The following tables are results of the Demand Model; assuming "business as usual" with regard to economic growth expectations. This medium economic growth scenario is referred to as TRENDLONG. By varying the assumptions about economic growth, for instance, growth in GNP, productivity and value added, we can generate a low, or pessimistic, demand forecast or a high, or optimistic, one. The low forecast is referred to as CYCLELONG, the high as CEASPIRIT.²

COAL DATA

Two sets of tables follow, one each for target years 1985 and 1990. Each set contains information about (1) the minimum acceptable selling price of each coal type, (2) the maximum level of production from each mine type, and (3) the present value of cumulative investment required between 1978 and the target year to continue operating existing mines or to open each new mine. Each table provides data for a specific combination of coal type and region. Coal regions are shown in Figure II-2. The region name and coal type are stated in the table headings.

²See Chapter 1 of this volume for a description of the TRENDLONG, CYCLELONG and CEASPIRIT scenarios.

DEMAND DATA
TREND LONG

5-TT

DATA SOURCES: ELECTRICITY - STATISTICAL YEARBOOK, EDISON ELECTRIC INSTITUTE, WASHINGTON, D.C.
GAS, OIL, COAL: VARIOUS VOLUMES OF MINERAL INDUSTRY SURVEYS, PRODUCED BY THE BUREAU OF MINES.
JET FUEL: NEWSLETTERS AND RELEASES FROM THE ETHEL CORPORATION OF HOUSTON, TEXAS.

OFFICE RESPONSIBLE: OFFICE OF ENERGY USE ANALYSIS, ENERGY INFORMATION ADMINISTRATION (EIA).

TABLE 1 DEMAND POINTS IN TRILLIONS OF BTU'S FOR 1985

	DOE 1	DOE 2	DOE 3	DOE 4	DOE 5	DOE 6	DOE 7	DOE 8	DOE 9	DOE 10
ELECTRICITY RES	66.80	164.74	216.09	670.32	372.85	251.83	123.41	87.41	147.47	156.53
NATURAL GAS RES	461.20	1222.08	1272.70	814.94	4887.83	1997.67	1273.22	906.93	1434.95	293.39
DISTILLATE FUEL RES	241.83	364.53	165.23	102.28	434.48	48.77	47.88	15.63	15.60	47.26
LIQUID GAS RES	15.13	17.71	17.56	76.78	113.42	73.11	77.19	40.68	3.40	1.99
ELECTRICITY COM	76.23	200.70	195.21	356.24	328.50	220.93	95.99	94.61	203.09	94.53
NATURAL GAS COM	217.59	439.76	465.78	580.35	1710.85	550.13	329.12	216.05	471.22	138.89
DISTILLATE FUEL COM	134.84	114.52	75.00	45.45	145.10	35.48	26.83	25.22	11.71	30.57
RESIDUAL FUEL COM	90.21	161.59	37.22	23.21	75.67	30.03	4.93	7.49	3.01	11.58
ELECTRICITY IND	80.17	201.20	379.17	830.53	781.53	419.60	155.25	87.65	185.18	197.92
NATURAL GAS IND	216.39	571.35	1089.58	2126.74	3523.88	13107.94	764.35	461.98	2187.83	531.36
DISTILLATE FUEL IND	12.49	31.19	97.09	77.30	122.81	86.78	27.93	54.14	44.89	41.68
RESIDUAL FUEL IND	88.66	46.75	65.75	95.31	53.80	239.58	9.27	13.85	32.64	23.21
LIQUID GAS IND	33.17	22.19	35.31	71.44	146.68	141.37	71.81	27.90	55.31	4.36
COAL IND	0.35	8.61	33.27	37.44	81.52	11.84	13.40	25.96	5.60	6.45
GASOLINE TRANS	403.39	685.23	794.99	1523.69	1639.97	978.81	491.54	292.69	944.20	283.01
DISTILLATE FUEL TRA	31.01	56.91	110.87	229.06	232.87	210.84	91.82	63.84	121.33	52.46
JET FUEL TRANS	40.59	122.91	79.69	202.24	134.42	125.09	35.89	43.41	269.12	73.48
RESIDUAL FUEL TRANS	7.53	31.97	39.99	26.43	4.30	88.43	0.45	0.52	51.45	9.26
ELECTRICITY TRANS	0.08	6.34	2.89	0.0	0.96	0.0	0.08	0.0	0.72	0.0
NATURAL GAS RAW V	11.01	22.94	168.08	442.35	191.31	1442.23	239.07	23.60	116.41	95.83
LIQUID GAS COM	1.29	1.61	1.81	7.91	10.85	5.71	6.41	3.54	0.47	0.24
LIQUID GAS TRANS	0.05	0.59	0.42	1.40	1.30	8.38	0.71	0.81	0.62	0.20
LIQUID GAS FEEDSTOCK	0.0	0.0	14.67	39.39	56.71	1190.57	33.32	0.0	17.35	0.0
LIQUID GAS RAW MAT	11.21	28.74	22.65	33.39	43.04	21.58	10.61	7.39	23.37	7.75
CIL RAW MAT	6.01	26.35	32.06	56.48	69.13	55.24	16.62	11.41	20.27	38.19
NAPHTHA IND	9.54	27.27	7.18	4.91	53.53	127.91	0.98	0.0	8.65	0.0
ASPHALT COM	15.96	35.74	35.92	80.51	109.85	70.70	29.93	25.33	47.90	26.62
CCAL RES&COM	0.01	0.14	0.99	0.99	2.09	0.01	0.13	0.06	0.01	0.10
CCAL TRANS	0.0	0.0	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET CCAL IND	0.0	15.95	102.34	24.53	101.31	2.08	0.90	9.30	6.10	0.0

TABLE 2 DEMAND POINTS IN TRILLIONS CF BTU S FOR 1990

	DOE 1	DOE 2	DOE 3	DOE 4	DOE 5	DOE 6	DOE 7	DOE 8	DOE 9	DOE 10
ELECTRICITY RES	69.15	172.62	227.15	921.54	391.95	274.23	137.36	100.76	162.83	168.59
NATURAL GAS RES	459.45	1176.34	1252.99	620.03	4783.54	2016.46	1130.32	1001.80	1519.36	366.18
DISTILLATE FUEL RES	258.14	378.36	174.34	122.49	469.45	56.15	52.11	15.44	16.22	53.36
LIQUID GAS RES	16.43	18.50	18.38	85.49	118.18	80.04	80.60	44.90	3.46	2.10
ELECTRICITY COM	84.77	225.83	223.55	429.22	371.41	250.41	111.22	109.10	220.14	99.78
NATURAL GAS COM	209.63	380.79	426.00	509.75	1392.75	481.49	265.82	183.23	434.43	114.40
DISTILLATE FUEL COM	149.51	119.73	86.56	54.39	161.42	41.33	29.47	29.51	12.56	33.78
RESIDUAL FUEL COM	93.34	162.59	38.92	25.60	77.28	31.63	4.92	7.87	2.86	11.44
ELECTRICITY IND	92.97	243.16	460.62	1054.73	950.98	512.21	199.79	99.64	218.28	215.82
NATURAL GAS IND	240.42	629.77	1182.28	2382.03	4082.60	16144.37	815.49	488.11	2375.62	542.09
DISTILLATE FUEL IND	14.81	37.20	120.28	98.47	156.62	116.51	36.25	70.51	53.73	53.97
RESIDUAL FUEL IND	106.07	52.16	74.14	115.41	62.01	345.09	11.69	14.36	36.65	26.20
LIQUID GAS IND	41.62	27.02	44.67	90.11	185.39	186.44	91.51	36.39	65.39	5.49
COAL IND	0.40	9.53	44.71	46.54	97.76	15.91	16.61	32.51	6.89	7.54
GASLINE TRANS	441.46	734.10	875.15	1741.93	1780.31	1107.90	533.58	327.47	1042.71	315.94
DISTILLATE FUEL TRAN	32.02	57.10	115.42	250.89	237.89	227.80	93.81	67.91	126.76	55.63
JET FUEL TRANS	41.65	120.21	83.74	229.15	136.48	136.86	37.02	46.47	273.67	77.04
RESIDUAL FUEL TRANS	7.57	32.16	40.23	26.59	4.33	88.96	0.45	0.53	51.76	9.31
ELECTRICITY TRANS	0.08	6.34	2.89	0.0	0.96	0.0	0.08	0.0	0.72	0.0
NATURAL GAS RAW MAT	14.69	30.21	221.95	606.08	255.83	1890.05	304.33	30.59	148.27	118.47
LIQUID GAS COM	1.28	1.59	1.78	7.79	10.70	5.32	5.98	3.51	0.46	0.23
LIQUID GAS TRANS	0.04	0.52	0.37	1.22	1.14	7.34	0.62	0.71	0.54	0.18
LIQUID GAS FEEDSTOCK	0.0	0.0	18.01	49.70	70.29	1515.51	41.33	0.0	21.53	0.0
LIQUID GAS RAW MAT	14.63	37.51	29.57	43.58	56.19	28.17	13.85	9.65	30.51	10.12
OIL RAW MAT	7.13	31.23	38.00	66.95	81.94	65.48	19.70	13.52	24.03	45.27
NAPHTHA IND	12.36	34.91	9.22	6.51	69.46	171.50	1.28	0.0	11.20	0.0
ASPHALT COM	17.19	37.82	35.92	91.49	122.89	76.62	31.56	28.88	56.28	31.84
CCAL RES&COM	0.01	0.09	0.64	0.68	1.39	0.00	0.08	0.03	0.00	0.07
CCAL TRANS	0.0	0.0	0.02	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	16.69	107.29	26.08	106.79	2.25	0.96	9.86	6.52	0.0

TABLE 3 INITIAL PRICES IN DOLLARS/STANDARD UNIT FOR 1985

	OCE 1	OCE 2	DOE 3	DOE 4	DOE 5	DOE 6	DOE 7	DOE 8	DOE 9	DOE 10
ELECTRICITY RES	43.90	45.24	37.83	32.16	35.53	39.88	35.42	27.95	40.57	20.21
NATURAL GAS RES	3.97	3.59	3.14	2.69	2.60	1.98	1.85	1.81	3.34	3.16
DISTILLATE FUEL RES	19.49	19.55	20.88	21.24	19.05	19.63	18.54	19.48	19.78	19.78
LIQUID GAS RES	14.27	14.66	15.72	15.74	13.98	14.17	13.58	13.73	13.89	13.89
ELECTRICITY CCM	43.63	50.42	36.14	32.54	35.46	38.12	34.65	25.48	37.82	20.14
NATURAL GAS CCM	3.38	3.06	2.73	2.23	2.32	2.15	3.26	2.49	2.98	2.64
DISTILLATE FUEL CCM	18.28	18.72	18.92	18.94	18.12	18.35	17.66	18.33	18.39	18.39
RESIDUAL FUEL CCM	16.34	16.85	18.49	16.52	17.65	16.69	17.70	19.06	16.73	16.35
ELECTRICITY IND	37.11	26.59	29.38	27.39	27.89	33.21	29.21	21.15	32.75	14.48
NATURAL GAS IND	2.80	2.45	2.36	2.02	3.00	1.89	2.95	2.07	2.30	2.04
DISTILLATE FUEL IND	18.27	18.63	19.40	19.35	18.10	18.26	17.62	18.52	18.39	18.39
RESIDUAL FUEL IND	16.64	17.40	18.06	16.34	17.52	16.64	17.54	18.77	16.71	17.01
LIQUID GAS IND	13.46	13.75	14.44	14.52	13.40	13.42	13.05	13.00	13.05	13.05
COAL IND	38.36	36.11	33.91	37.78	32.89	30.87	31.68	25.92	33.43	33.01
GASOLINE TRANS	27.77	28.79	27.65	27.28	27.19	26.33	26.63	26.95	28.13	28.19
DISTILLATE FUEL TRAN	23.94	24.30	25.07	25.02	23.77	23.93	23.29	24.19	24.06	24.06
JET FUEL TRANS	19.42	19.92	21.13	21.34	19.02	19.56	18.48	19.58	19.71	19.71
RESIDUAL FUEL TRANS	16.64	17.40	18.06	16.34	17.52	16.64	17.54	18.77	16.71	17.01

TABLE 4 INITIAL PRICES IN DOLLARS/STANDARD UNIT FOR 1990

	DOE 1	DOE 2	DOE 3	DOE 4	DOE 5	DOE 6	DOE 7	DOE 8	DOE 9	DOE 10
ELECTRICITY RES	47.29	48.12	41.01	34.20	38.48	43.24	36.28	31.16	41.79	22.42
NATURAL GAS RES	4.75	4.15	3.55	3.23	3.38	2.49	2.68	2.35	3.17	2.84
DISTILLATE FUEL RES	20.37	20.87	21.76	22.12	19.93	20.51	19.42	20.36	20.64	20.64
LIQUID GAS RES	14.74	15.13	16.19	16.22	14.46	14.65	14.10	14.50	14.98	14.94
ELECTRICITY COM	47.02	53.25	39.32	34.58	38.41	41.48	35.51	28.68	39.04	22.35
NATURAL GAS COM	4.16	3.62	3.14	2.78	3.09	2.74	3.38	2.80	2.71	3.58
DISTILLATE FUEL COM	19.16	19.60	19.80	19.82	19.00	19.23	18.54	19.21	19.25	19.25
RESIDUAL FUEL COM	17.34	17.85	19.45	17.52	18.65	17.69	18.70	20.00	17.73	17.35
ELECTRICITY IND	40.50	25.47	32.55	29.44	30.84	36.57	30.06	24.35	33.97	16.69
NATURAL GAS IND	3.66	3.01	2.78	2.49	2.80	2.48	3.07	2.38	3.02	3.27
DISTILLATE FUEL IND	19.15	19.51	20.28	20.23	18.98	19.14	18.50	19.40	19.25	19.25
RESIDUAL FUEL IND	17.64	18.40	19.06	17.34	18.52	17.64	18.54	19.71	17.71	18.01
LIQUID GAS IND	13.93	14.22	14.91	15.00	13.88	13.90	13.57	13.77	14.14	14.14
COAL IND	39.24	36.97	34.74	38.63	33.88	32.53	32.69	27.45	35.15	37.62
GASOLINE TRANS	28.52	25.54	28.40	28.03	27.93	27.08	27.38	27.70	28.86	28.92
DISTILLATE FUEL TRAN	24.82	25.18	25.95	25.90	24.65	24.81	24.17	25.07	24.92	24.92
JET FUEL TRANS	20.21	20.71	21.93	22.15	19.82	20.37	19.28	20.39	20.49	20.49
RESIDUAL FUEL TRANS	17.64	18.40	19.06	17.34	18.52	17.64	18.54	19.71	17.71	18.01

TABLE 5 UNSCALED ELASTICITIES FOR DEMAND REGION 1 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.723	0.084	0.204	0.0	0.014	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.077	-0.582	0.075	0.0	0.006	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.181	0.075	-0.690	0.0	0.013	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.036	0.017	0.047	0.0	-0.525	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.629	0.026	0.064	0.045	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.202	-0.823	0.068	0.060	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.033	0.013	-0.552	0.009	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.077	0.006	0.062	-0.640	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.344	0.036	0.022	0.041	0.035	0.002	0.0	0.0	0.0
NATURAL GAS IND	0.125	-0.382	0.014	0.008	0.021	0.002	0.0	0.0	0.0
DISTILLATE FUEL IND	0.274	0.034	-0.596	0.043	0.033	0.002	0.0	0.0	0.0
RESIDUAL FUEL IND	0.121	0.024	0.020	-0.408	0.028	0.003	0.0	0.0	0.0
LIQUID GAS IND	0.196	0.028	0.018	0.022	-0.477	0.002	0.0	0.0	0.0
COAL IND	0.102	0.015	0.010	0.011	0.015	-0.366	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.072	0.0	0.0	0.0	-0.200	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.555	0.047	0.092	0.030	0.017	0.001	0.0	0.0	0.138
NATURAL GAS	0.119	-0.589	0.058	0.017	0.008	0.0	0.0	0.0	0.083
DISTILLATE FUEL	0.124	0.048	-0.658	0.004	0.009	0.0	0.039	0.0	-0.602
RESIDUAL FUEL	0.094	0.014	0.048	-0.515	0.013	0.001	0.0	0.0	-0.454
LIQUID GAS	0.116	0.019	0.022	0.012	-0.389	0.001	0.0	0.0	-0.359
OTHER PETROLEUM	0.0	0.0	0.039	0.0	-0.020	0.0	-0.107	0.0	-0.090
OIL	0.049	0.022	-0.207	-0.094	-0.009	0.0	-0.068	-0.007	-0.390
COAL	0.099	0.014	0.010	0.011	0.015	-0.355	0.0	0.0	0.035

TABLE 6 UNSCALED ELASTICITIES FOR DEMAND REGION 2 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.533	0.037	0.080	0.0	-0.006	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.100	-0.579	0.053	0.0	0.004	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.150	0.052	-0.629	0.0	0.005	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.049	0.019	0.035	0.0	-0.526	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.572	0.021	0.022	0.034	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.261	-0.831	0.031	0.045	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.020	0.011	-0.534	0.007	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.136	0.005	0.010	-0.646	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.349	0.038	0.034	0.035	0.021	0.013	0.0	0.0	0.0
NATURAL GAS IND	0.109	-0.386	0.021	0.020	0.014	0.009	0.0	0.0	0.0
DISTILLATE FUEL IND	0.272	0.038	-0.584	0.034	0.020	0.012	0.0	0.0	0.0
RESIDUAL FUEL IND	0.086	0.015	0.028	-0.375	0.020	0.014	0.0	0.0	0.0
LIQUID GAS IND	0.183	0.026	0.028	0.028	-0.487	0.011	0.0	0.0	0.0
COAL IND	0.095	0.014	0.015	0.015	0.010	-0.361	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.072	0.0	0.0	0.0	-0.200	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.477	0.031	0.043	0.024	0.005	0.004	0.0	0.0	-0.072
NATURAL GAS	0.135	-0.577	0.040	0.014	0.006	0.002	0.0	0.0	0.060
DISTILLATE FUEL	0.116	0.038	-0.633	0.003	0.004	0.001	0.054	0.0	-0.567
RESIDUAL FUEL	0.110	0.006	0.036	-0.532	0.004	0.003	0.0	0.0	-0.492
LIQUID GAS	0.070	0.013	0.017	0.009	-0.283	0.004	0.0	0.0	-0.260
OTHER PETROLEUM	0.0	0.0	0.031	0.0	-0.020	0.0	-0.085	0.0	-0.076
OIL	0.058	0.014	-0.167	-0.083	-0.007	0.001	-0.074	-0.014	-0.348
COAL	0.029	0.004	0.005	0.005	0.003	-0.110	0.0	0.0	0.012

TABLE 7 UNSCALED ELASTICITIES FOR DEMAND REGION 3 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.482	0.046	0.023	0.0	-0.009	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.117	-0.583	0.037	0.0	0.006	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.182	0.049	-0.659	0.0	0.006	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.066	0.020	0.017	0.0	-0.926	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.569	0.031	0.020	0.015	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.259	-0.814	0.040	0.024	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.106	0.004	-0.605	-0.001	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.147	0.010	0.011	-0.663	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.348	0.031	0.046	0.030	0.018	0.014	0.0	0.0	0.0
NATURAL GAS IND	0.109	-0.348	0.027	0.018	0.012	0.009	0.0	0.0	0.0
DISTILLATE FUEL IND	0.273	0.030	-0.572	0.028	0.017	0.013	0.0	0.0	0.0
RESIDUAL FUEL IND	0.087	0.013	0.034	-0.376	0.018	0.012	0.0	0.0	0.0
LIQUID GAS IND	0.184	0.022	0.037	0.025	-0.450	0.012	0.0	0.0	0.0
COAL IND	0.095	0.012	0.019	0.013	0.008	-0.360	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	-0.009	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.439	0.035	0.035	0.018	0.006	0.007	0.0	0.0	0.059
NATURAL GAS	0.132	-0.520	0.032	0.011	0.007	0.003	0.0	0.0	0.049
DISTILLATE FUEL	0.144	0.025	-0.688	0.006	0.006	0.003	0.132	0.0	-0.531
RESIDUAL FUEL	0.080	0.009	0.070	-0.388	0.008	0.005	0.0	0.0	-0.309
LIQUID GAS	0.084	0.012	0.017	0.010	-0.288	0.005	0.0	0.0	-0.264
OTHER PETROLEUM	0.0	0.0	0.0	0.0	-0.006	0.0	0.0	0.0	-0.006
OIL	0.054	0.009	-0.149	-0.037	-0.010	0.002	-0.074	-0.010	-0.281
COAL	0.023	0.003	0.005	0.003	0.002	-0.084	0.0	0.0	0.010

TABLE 8 UNSCALED ELASTICITIES FOR DEMAND REGION 4 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.470	0.016	0.024	0.0	0.006	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.283	-0.785	0.052	0.0	0.027	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.769	0.055	-1.273	0.0	0.026	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.090	0.004	0.007	0.0	-0.525	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.536	0.022	0.012	0.006	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.300	-0.829	0.022	0.012	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.122	-0.001	-0.615	-0.003	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.169	0.003	-0.002	-0.667	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.324	0.027	0.027	0.025	0.021	0.015	0.0	0.0	0.0
NATURAL GAS IND	0.116	-0.388	0.017	0.017	0.014	0.011	0.0	0.0	0.0
DISTILLATE FUEL IND	0.298	0.026	-0.591	0.023	0.019	0.014	0.0	0.0	0.0
RESIDUAL FUEL IND	0.088	0.015	0.024	-0.377	0.020	0.017	0.0	0.0	0.0
LIQUID GAS IND	0.198	0.020	0.022	0.021	-0.487	0.013	0.0	0.0	0.0
COAL IND	0.103	0.011	0.012	0.011	0.010	-0.359	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.084	0.0	0.0	0.0	-0.233	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.418	0.022	0.023	0.012	0.011	0.007	0.0	0.0	0.046
NATURAL GAS	0.167	-0.495	0.023	0.011	0.013	0.006	0.0	0.0	0.047
DISTILLATE FUEL	0.241	0.017	-0.898	0.004	0.009	0.002	0.269	0.0	-0.586
RESIDUAL FUEL	0.087	0.010	0.050	-0.382	0.013	0.011	0.0	0.0	-0.319
LIQUID GAS	0.092	0.007	0.009	0.007	-0.325	0.004	0.0	0.0	-0.315
OTHER PETROLEUM	0.0	0.0	0.051	0.0	-0.002	0.0	-0.139	0.0	-0.093
OIL	0.056	0.004	-0.105	-0.023	-0.018	0.001	-0.043	-0.016	-0.257
COAL	0.057	0.006	0.007	0.006	0.005	-0.197	0.0	0.0	0.018

TABLE 9 UNSCALED ELASTICITIES FOR DEMAND REGION 5 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.506	-0.007	0.060	0.0	0.031	0.0	0.0	0.0	0.0
NATURAL GAS RES	-0.042	-0.360	-0.011	0.0	-0.012	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.101	-0.003	-0.537	0.0	0.016	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.050	0.030	0.020	0.0	-0.523	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.589	0.050	0.029	0.016	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.236	-0.797	0.041	0.025	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.093	0.015	-0.604	0.0	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.129	0.025	0.012	-0.662	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.358	0.056	0.031	0.017	0.028	-0.017	0.0	0.0	0.0
NATURAL GAS IND	-0.114	-0.387	0.020	0.012	0.019	0.011	0.0	0.0	0.0
DISTILLATE FUEL IND	0.262	0.058	-0.587	0.015	0.027	0.016	0.0	0.0	0.0
RESIDUAL FUEL IND	0.104	0.0	0.027	-0.383	0.025	0.015	0.0	0.0	0.0
LIQUID GAS IND	0.184	0.033	0.026	0.015	-0.482	0.014	0.0	0.0	0.0
COAL IND	0.095	0.017	0.014	0.008	0.013	-0.359	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.121	0.0	0.0	0.0	-0.333	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.447	0.039	0.038	0.012	0.023	0.009	0.0	0.0	0.073
NATURAL GAS	0.061	-0.439	0.009	0.009	0.0	0.004	0.0	0.0	0.018
DISTILLATE FUEL	0.096	0.009	-0.641	0.002	0.011	0.002	0.133	0.0	-0.482
RESIDUAL FUEL	0.116	0.015	0.023	-0.539	0.010	0.006	0.0	0.0	-0.506
LIQUID GAS	0.088	0.022	0.016	0.006	-0.348	0.005	0.0	0.0	-0.331
OTHER PETROLEUM	0.0	0.0	0.061	0.0	-0.015	0.0	-0.166	0.0	-0.124
OIL	0.041	0.005	-0.137	-0.024	-0.025	0.001	-0.086	-0.008	-0.283
COAL	0.038	0.007	0.005	0.003	0.005	-0.142	0.0	0.0	0.014

TABLE 10 UNSCALED ELASTICITIES FOR DEMAND REGION 6 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.503	0.047	0.017	0.0	0.017	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.180	-0.599	-0.001	0.0	-0.003	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.271	0.056	-0.774	0.0	0.025	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.079	0.016	0.003	0.0	-0.523	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.543	0.025	0.012	0.010	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.291	-0.825	0.021	0.017	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.120	0.001	-0.615	-0.003	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.165	0.006	-0.001	-0.666	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.406	0.090	0.026	0.043	0.032	0.007	0.0	0.0	0.0
NATURAL GAS IND	0.120	-0.403	0.018	0.027	0.021	0.006	0.0	0.0	0.0
DISTILLATE FUEL IND	0.209	0.098	-0.592	0.041	0.030	0.007	0.0	0.0	0.0
RESIDUAL FUEL IND	0.147	-0.058	0.025	-0.364	0.030	0.009	0.0	0.0	0.0
LIQUID GAS IND	0.168	0.035	0.022	0.036	-0.478	0.007	0.0	0.0	0.0
COAL IND	0.049	0.016	0.012	0.019	0.014	-0.363	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.057	0.0	0.0	0.0	-0.158	0.0	0.0
COAL RESRCOM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.467	0.061	0.020	0.023	0.020	0.003	0.0	0.0	0.062
NATURAL GAS	0.123	-0.407	0.014	0.022	0.016	0.004	0.0	0.0	0.051
DISTILLATE FUEL	0.094	0.030	-0.782	0.009	0.010	0.001	0.295	0.0	-0.437
RESIDUAL FUEL	0.113	-0.038	0.063	-0.334	0.020	0.006	0.0	0.0	-0.750
LIQUID GAS	0.021	0.004	0.002	0.004	-0.073	0.001	0.0	0.0	-0.070
OTHER PETROLEUM	0.0	0.0	0.017	0.0	-0.034	0.0	-0.047	0.0	-0.065
OIL	0.033	0.0	-0.060	-0.040	-0.023	0.001	-0.037	-0.008	-0.170
COAL	0.074	0.013	0.010	0.016	0.012	-0.299	0.0	0.0	0.038

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TABLE 11 UNSCALED ELASTICITIES FOR DEMAND REGION 7 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.537	0.054	0.030	0.0	0.032	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.144	-0.584	0.006	0.0	0.012	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.233	0.062	-0.758	0.0	0.042	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.066	0.020	0.007	0.0	-0.517	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.574	0.055	0.020	0.004	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.255	-0.788	0.031	0.008	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.101	0.016	-0.611	-0.002	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.141	0.026	0.004	-0.667	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.364	0.047	0.031	0.013	0.049	0.015	0.0	0.0	0.0
NATURAL GAS IND	0.113	-0.391	0.020	0.009	0.027	0.010	0.0	0.0	0.0
DISTILLATE FUEL IND	0.256	0.049	-0.587	0.012	0.047	0.014	0.0	0.0	0.0
RESIDUAL FUEL IND	0.104	-0.005	0.027	-0.387	0.034	0.015	0.0	0.0	0.0
LIQUID GAS IND	0.180	0.025	0.026	0.011	-0.467	0.013	0.0	0.0	0.0
COAL IND	0.094	0.013	0.014	0.006	0.020	-0.360	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.057	0.0	0.0	0.0	-0.158	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.475	0.052	0.028	0.006	0.030	0.006	0.0	0.0	0.064
NATURAL GAS	0.137	-0.502	0.013	0.004	0.014	0.003	0.0	0.0	0.030
DISTILLATE FUEL	0.109	0.025	-0.776	0.001	0.017	0.002	0.252	0.0	-0.479
RESIDUAL FUEL	0.114	0.006	0.023	-0.479	0.021	0.009	0.0	0.0	-0.435
LIQUID GAS	0.090	0.017	0.012	0.004	-0.366	0.005	0.0	0.0	-0.374
OTHER PETROLEUM	0.0	0.0	0.038	0.0	-0.001	0.0	-0.104	0.0	-0.069
OIL	0.041	0.008	-0.120	-0.008	-0.053	0.001	-0.072	-0.008	-0.265
COAL	0.086	0.013	0.012	0.006	0.018	-0.329	0.0	0.0	0.036

TABLE 12 UNSCALED ELASTICITIES FOR DEMAND REGION 8 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.558	0.068	0.030	0.0	0.038	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.183	-0.612	-0.004	0.0	0.011	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.131	0.055	-0.643	0.0	0.035	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.064	0.025	0.004	0.0	-0.517	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.575	0.040	0.030	0.010	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.251	-0.807	0.044	0.017	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.105	0.007	-0.606	-0.002	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.144	0.015	0.010	-0.665	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.437	0.043	0.092	0.034	0.043	0.017	0.0	0.0	0.0
NATURAL GAS IND	0.084	-0.390	0.045	0.021	0.025	0.004	0.0	0.0	0.0
DISTILLATE FUEL IND	0.183	0.044	-0.526	0.033	0.041	0.018	0.0	0.0	0.0
RESIDUAL FUEL IND	0.082	0.001	0.049	-0.373	0.032	-0.002	0.0	0.0	0.0
LIQUID GAS IND	0.131	0.025	0.068	0.028	-0.471	0.009	0.0	0.0	0.0
COAL IND	0.069	0.013	0.035	0.015	0.018	-0.362	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.103	0.0	0.0	0.0	-0.285	0.0	0.0
COAL RESCOM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.525	0.050	0.050	0.015	0.026	0.005	0.0	0.0	0.090
NATURAL GAS	0.162	-0.568	0.017	0.008	0.013	0.001	0.0	0.0	0.039
DISTILLATE FUEL	0.092	0.022	-0.696	0.011	0.018	0.006	0.214	0.0	-0.432
RESIDUAL FUEL	0.103	0.006	0.038	-0.474	0.020	-0.001	0.0	0.0	-0.416
LIQUID GAS	0.078	0.022	0.026	0.010	-0.425	0.003	0.0	0.0	-0.394
OTHER PETROLEUM	0.0	0.0	0.074	0.0	0.0	0.0	-0.204	0.0	-0.133
OIL	0.037	0.008	-0.138	-0.016	-0.034	0.002	-0.064	-0.015	-0.268
COAL	0.048	0.009	0.025	0.010	0.013	-0.252	0.0	0.0	0.047

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TABLE 13 UNSCALED ELASTICITIES FOR DEMAND REGION 9 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.550	0.114	0.011	0.0	0.003	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.296	-0.730	0.011	0.0	0.001	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.320	0.167	-0.907	0.0	-0.002	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.065	0.035	0.002	0.0	-0.526	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.536	0.034	0.004	0.001	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.304	-0.812	0.009	0.003	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.117	0.003	-0.615	-0.002	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.164	0.009	-0.003	-0.666	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.356	0.049	0.036	0.022	0.032	0.009	0.0	0.0	0.0
NATURAL GAS IND	0.129	-0.406	0.023	0.015	0.021	0.007	0.0	0.0	0.0
DISTILLATE FUEL IND	0.261	0.054	-0.582	0.021	0.030	0.008	0.0	0.0	0.0
RESIDUAL FUEL IND	0.137	-0.040	0.031	-0.379	0.028	0.011	0.0	0.0	0.0
LIQUID GAS IND	0.194	0.017	0.030	0.019	-0.479	0.008	0.0	0.0	0.0
COAL IND	0.102	0.008	0.016	0.010	0.014	-0.362	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.143	0.0	0.0	0.0	-0.396	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.477	0.061	0.017	0.008	0.012	0.003	0.0	0.0	0.037
NATURAL GAS	0.203	-0.552	0.017	0.008	0.011	0.004	0.0	0.0	0.036
DISTILLATE FUEL	0.096	0.027	-0.802	0.005	0.007	0.002	0.331	0.0	-0.424
RESIDUAL FUEL	0.059	-0.015	0.123	-0.244	0.011	0.004	0.0	0.0	-0.110
LIQUID GAS	0.111	0.011	0.017	0.011	-0.283	0.005	0.0	0.0	-0.257
OTHER PETROLEUM	0.0	0.0	0.094	0.0	-0.007	0.0	-0.257	0.0	-0.175
OIL	0.021	0.003	-0.037	-0.014	-0.012	0.001	-0.105	-0.035	-0.203
COAL	0.045	0.003	0.007	0.005	0.006	-0.159	0.0	0.0	0.018

TABLE 14 UNSCALED ELASTICITIES FOR DEMAND REGION 10 - 1985

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.698	0.138	0.139	0.0	-0.002	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.294	-0.809	0.091	0.0	0.001	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.288	0.104	-0.812	0.0	-0.004	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.061	0.020	0.020	0.0	-0.526	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.592	0.035	0.046	0.016	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.227	-0.811	0.063	0.026	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.097	0.004	-0.596	-0.001	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.133	0.011	0.024	-0.663	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.416	0.059	0.076	0.042	0.010	0.019	0.0	0.0	0.0
NATURAL GAS IND	0.082	-0.380	0.041	0.025	0.007	0.013	0.0	0.0	0.0
DISTILLATE FUEL IND	0.207	0.059	-0.543	0.040	0.009	0.018	0.0	0.0	0.0
RESIDUAL FUEL IND	0.062	0.014	0.050	-0.368	0.010	0.019	0.0	0.0	0.0
LIQUID GAS IND	0.138	0.039	0.059	0.034	-0.497	0.017	0.0	0.0	0.0
COAL IND	0.072	0.020	0.031	0.018	0.005	-0.358	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.088	0.0	0.0	0.0	-0.244	0.0	-0.159
DISTILLATE FUEL TRAN	0.0	0.0	-0.892	0.0	0.0	0.0	0.531	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.211	-0.211
RESIDUAL FUEL TRANS	0.0	0.0	0.192	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.143	0.0	0.0	0.0	-0.396	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.550	0.081	0.091	0.022	0.004	0.009	0.0	0.0	0.117
NATURAL GAS	0.153	-0.523	0.054	0.016	0.004	0.007	0.0	0.0	0.074
DISTILLATE FUEL	0.148	0.044	-0.730	0.010	0.001	0.004	0.161	0.0	-0.542
RESIDUAL FUEL	0.070	0.010	0.071	-0.403	0.005	0.010	0.0	0.0	-0.327
LIQUID GAS	0.051	0.015	0.021	0.010	-0.222	0.005	0.0	0.0	-0.193
OTHER PETROLEUM	0.0	0.0	0.064	0.0	0.0	0.0	-0.175	0.0	-0.114
OIL	0.048	0.013	-0.151	-0.029	-0.003	0.002	-0.072	-0.023	-0.280
COAL	0.071	0.019	0.030	0.018	0.005	-0.351	0.0	0.0	0.052

TABLE 15 UNSCALED ELASTICITIES FOR DEMAND REGION 1 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.933	0.116	0.320	0.0	0.018	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.078	-0.687	0.121	0.0	0.007	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.189	0.104	-0.788	0.0	0.016	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.031	0.022	0.051	0.0	-0.585	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.716	0.034	0.079	0.052	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.240	-0.966	0.100	0.076	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.058	0.019	-0.647	0.016	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.060	0.007	0.053	-0.673	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.405	0.050	0.025	0.066	0.043	0.002	0.0	0.0	0.0
NATURAL GAS IND	0.153	-0.443	0.015	0.022	0.025	0.002	0.0	0.0	0.0
DISTILLATE FUEL IND	0.317	0.048	-0.693	0.066	0.041	0.002	0.0	0.0	0.0
RESIDUAL FUEL IND	0.170	0.035	0.023	-0.491	0.036	0.003	0.0	0.0	0.0
LIQUID GAS IND	0.237	0.039	0.021	0.041	-0.562	0.002	0.0	0.0	0.0
COAL IND	0.118	0.020	0.010	0.021	0.017	-0.412	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.115	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.094	0.0	0.0	0.0	-0.226	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.659	0.063	0.127	0.043	0.021	0.001	0.0	0.0	0.190
NATURAL GAS	0.137	-0.685	0.088	0.025	0.010	0.0	0.0	0.0	0.122
DISTILLATE FUEL	0.138	0.067	-0.764	0.007	0.010	0.0	0.055	0.0	-0.687
RESIDUAL FUEL	0.110	0.020	0.043	-0.568	0.017	0.001	0.0	0.0	-0.508
LIQUID GAS	0.140	0.026	0.023	0.023	-0.443	0.001	0.0	0.0	-0.401
OTHER PETROLEUM	0.0	0.0	0.047	0.0	-0.022	0.0	-0.111	0.0	-0.088
OIL	0.079	0.030	-0.229	-0.106	-0.011	0.0	-0.071	-0.007	-0.433
COAL	0.116	0.019	0.010	0.020	0.017	-0.405	0.0	0.0	0.047

TABLE 16 UNSCALED ELASTICITIES FOR DEMAND REGION 2 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.544	0.026	0.045	0.0	-0.006	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.116	-0.681	0.081	0.0	0.005	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.174	0.071	-0.727	0.0	0.006	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.053	0.019	0.034	0.0	-0.587	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.648	0.027	0.028	0.041	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.322	-0.977	0.044	0.060	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.054	0.015	-0.637	0.013	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.111	0.006	0.008	-0.679	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.397	0.055	0.039	0.042	0.024	0.015	0.0	0.0	0.0
NATURAL GAS IND	0.143	-0.444	0.023	0.025	0.016	0.011	0.0	0.0	0.0
DISTILLATE FUEL IND	0.328	0.054	-0.679	0.040	0.022	0.014	0.0	0.0	0.0
RESIDUAL FUEL IND	0.138	0.027	0.034	-0.466	0.024	0.018	0.0	0.0	0.0
LIQUID GAS IND	0.233	0.040	0.032	0.034	-0.576	0.014	0.0	0.0	0.0
COAL IND	0.116	0.020	0.016	0.017	0.010	-0.406	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.115	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.094	0.0	0.0	0.0	-0.226	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.521	0.037	0.037	0.030	0.007	0.006	0.0	0.0	0.074
NATURAL GAS	0.163	-0.663	0.057	0.018	0.007	0.003	0.0	0.0	0.082
DISTILLATE FUEL	0.143	0.052	-0.746	0.005	0.005	0.001	0.075	0.0	-0.655
RESIDUAL FUEL	0.103	0.009	0.034	-0.573	0.004	0.003	0.0	0.0	-0.534
LIQUID GAS	0.086	0.017	0.017	0.011	-0.307	0.004	0.0	0.0	-0.282
OTHER PETROLEUM	0.0	0.0	0.037	0.0	-0.023	0.0	-0.088	0.0	-0.074
OIL	0.066	0.019	-0.186	-0.089	-0.009	0.001	-0.078	-0.014	-0.382
COAL	0.038	0.007	0.005	0.006	0.003	-0.132	0.0	0.0	0.014

TABLE 17 UNSCALED ELASTICITIES FOR DEMAND REGION 3 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.498	0.025	0.003	0.0	-0.010	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.140	-0.680	0.054	0.0	0.007	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.214	0.073	-0.771	0.0	0.008	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.071	0.020	0.015	0.0	-0.587	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.641	0.039	0.032	0.018	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.326	-0.959	0.051	0.031	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.080	0.004	-0.637	-0.002	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.121	0.010	0.010	-0.696	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.395	0.045	0.057	0.034	0.021	0.018	0.0	0.0	0.0
NATURAL GAS IND	0.144	-0.448	0.032	0.021	0.014	0.012	0.0	0.0	0.0
DISTILLATE FUEL IND	0.329	0.044	-0.662	0.031	0.019	0.017	0.0	0.0	0.0
RESIDUAL FUEL IND	0.138	0.025	0.043	-0.470	0.021	0.018	0.0	0.0	0.0
LIQUID GAS IND	0.234	0.033	0.045	0.028	-0.578	0.015	0.0	0.0	0.0
COAL IND	0.116	0.017	0.022	0.014	0.009	-0.405	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.115	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.481	0.038	0.037	0.021	0.008	0.009	0.0	0.0	0.066
NATURAL GAS	0.161	-0.588	0.042	0.013	0.008	0.004	0.0	0.0	0.062
DISTILLATE FUEL	0.170	0.037	-0.808	0.007	0.007	0.004	0.181	0.0	-0.599
RESIDUAL FUEL	0.098	0.015	0.071	-0.447	0.010	0.008	0.0	0.0	-0.365
LIQUID GAS	0.105	0.017	0.020	0.011	-0.321	0.006	0.0	0.0	-0.294
OTHER PETROLEUM	0.0	0.0	0.0	0.0	-0.007	0.0	0.0	0.0	-0.007
OIL	0.065	0.013	-0.188	-0.042	-0.012	0.002	-0.072	-0.011	-0.309
COAL	0.030	0.004	0.006	0.004	0.002	-0.103	0.0	0.0	0.012

TABLE 18 UNSCALED ELASTICITIES FOR DEMAND REGION 4 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.532	0.016	0.029	0.0	0.009	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.426	-1.004	0.060	0.0	0.037	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.849	0.057	-1.413	0.0	0.024	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.091	0.004	0.009	0.0	-0.586	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.604	0.029	0.014	0.007	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.379	-0.975	0.028	0.015	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.092	0.002	-0.646	-0.004	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.140	0.007	-0.003	-0.700	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.364	0.042	0.030	0.028	0.023	0.018	0.0	0.0	0.0
NATURAL GAS IND	0.155	-0.447	0.019	0.018	0.013	0.013	0.0	0.0	0.0
DISTILLATE FUEL IND	0.361	0.041	-0.688	0.025	0.021	0.016	0.0	0.0	0.0
RESIDUAL FUEL IND	0.145	0.028	0.028	-0.472	0.024	0.022	0.0	0.0	0.0
LIQUID GAS IND	-0.254	0.033	0.025	0.024	-0.576	0.016	0.0	0.0	0.0
COAL IND	0.126	0.017	0.012	0.012	0.010	-0.405	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.115	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.109	0.0	0.0	0.0	-0.263	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.472	0.030	0.027	0.013	0.012	0.008	0.0	0.0	0.052
NATURAL GAS	0.206	-0.537	0.023	0.012	0.014	0.008	0.0	0.0	0.050
DISTILLATE FUEL	0.283	0.021	-1.072	0.004	0.010	0.003	0.369	0.0	-0.652
RESIDUAL FUEL	0.122	0.020	0.048	-0.458	0.016	0.015	0.0	0.0	-0.393
LIQUID GAS	0.111	-0.012	0.011	0.008	-0.364	0.005	0.0	0.0	-0.351
OTHER PETROLEUM	0.0	0.0	0.064	0.0	-0.003	0.0	-0.154	0.0	-0.092
OIL	0.068	0.006	-0.118	-0.028	-0.021	0.002	-0.089	-0.017	-0.278
COAL	0.075	0.010	0.007	0.007	0.006	-0.238	0.0	0.0	0.020

TABLE 19 UNSCALED ELASTICITIES FOR DEMAND REGION 5 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.641	0.002	0.118	0.0	0.047	0.0	0.0	0.0	0.0
NATURAL GAS RES	-0.067	-0.378	-0.024	0.0	-0.013	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.147	0.003	-0.649	0.0	0.022	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.043	0.039	0.022	0.0	-0.583	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.669	0.065	0.032	0.018	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.288	-0.920	0.050	0.031	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.072	0.009	-0.635	0.0	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.108	0.021	0.012	-0.694	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.400	0.071	0.037	0.018	0.034	0.020	0.0	0.0	0.0
NATURAL GAS IND	0.150	-0.445	0.023	0.012	0.021	0.013	0.0	0.0	0.0
DISTILLATE FUEL IND	0.323	0.071	-0.681	0.016	0.032	0.019	0.0	0.0	0.0
RESIDUAL FUEL IND	0.157	0.015	0.032	-0.481	0.031	0.020	0.0	0.0	0.0
LIQUID GAS IND	0.236	0.046	0.030	0.016	-0.568	0.017	0.0	0.0	0.0
COAL IND	0.118	0.023	0.015	0.008	0.014	-0.405	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.115	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.156	0.0	0.0	0.0	-0.376	0.0	0.0
COAL RESRCOM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.514	0.054	0.055	0.014	0.030	0.011	0.0	0.0	0.098
NATURAL GAS	0.071	-0.475	0.005	0.009	0.002	0.005	0.0	0.0	0.017
DISTILLATE FUEL	0.128	0.013	-0.766	0.002	0.015	0.003	0.181	0.0	-0.555
RESIDUAL FUEL	0.124	0.018	0.025	-0.595	0.012	0.008	0.0	0.0	-0.557
LIQUID GAS	0.111	0.030	0.019	0.007	-0.391	0.007	0.0	0.0	-0.371
OTHER PETROLEUM	0.0	0.0	0.075	0.0	-0.017	0.0	-0.178	0.0	-0.121
OIL	0.053	0.007	-0.156	-0.027	-0.029	0.002	-0.085	-0.008	-0.311
COAL	0.051	0.010	0.007	0.003	0.005	-0.172	0.0	0.0	0.016

TABLE 20 UNSCALED ELASTICITIES FOR DEMAND REGION 6 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.580	0.060	0.022	0.0	0.020	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.140	-0.619	0.002	0.0	-0.004	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.332	0.076	-0.916	0.0	0.032	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.078	0.020	0.005	0.0	-0.583	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.614	0.035	0.014	0.011	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.364	-0.965	0.026	0.022	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.090	0.003	-0.645	-0.004	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.136	0.010	-0.002	-0.699	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.464	0.135	0.029	0.060	0.035	0.007	0.0	0.0	0.0
NATURAL GAS IND	0.139	-0.447	0.019	0.037	0.023	0.006	0.0	0.0	0.0
DISTILLATE FUEL IND	0.234	0.142	-0.689	0.056	0.032	0.006	0.0	0.0	0.0
RESIDUAL FUEL IND	0.188	-0.037	0.029	-0.447	0.036	0.010	0.0	0.0	0.0
LIQUID GAS IND	0.195	0.070	0.024	0.050	-0.566	0.007	0.0	0.0	0.0
COAL IND	0.097	0.035	0.012	0.025	0.015	-0.410	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.115	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.074	0.0	0.0	0.0	-0.179	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.541	0.091	0.023	0.032	0.022	0.004	0.0	0.0	0.077
NATURAL GAS	0.133	-0.436	0.016	0.030	0.018	0.004	0.0	0.0	0.063
DISTILLATE FUEL	0.114	0.047	-0.951	0.014	0.013	0.002	0.400	0.0	-0.489
RESIDUAL FUEL	0.148	-0.026	0.057	-0.405	0.026	0.007	0.0	0.0	-0.321
LIQUID GAS	0.024	0.008	0.003	0.005	-0.082	0.001	0.0	0.0	-0.077
OTHER PETROLEUM	0.0	0.0	0.020	0.0	-0.037	0.0	-0.047	0.0	-0.065
OIL	0.043	0.005	-0.068	-0.052	-0.026	0.001	-0.029	-0.008	-0.187
COAL	0.083	0.030	0.010	0.022	0.013	-0.349	0.0	0.0	0.045

TABLE 21 UNSCALED ELASTICITIES FOR DEMAND REGION 7 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.626	0.075	0.037	0.0	0.037	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.106	-0.599	0.005	0.0	0.008	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.275	0.090	-0.894	0.0	0.053	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.062	0.026	0.008	0.0	-0.577	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.643	0.062	0.023	0.005	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.323	-0.924	0.038	0.010	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.081	0.008	-0.642	-0.003	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.123	0.018	0.003	-0.699	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.420	0.072	0.037	0.015	0.059	0.017	0.0	0.0	0.0
NATURAL GAS IND	0.141	-0.444	0.022	0.011	0.033	0.012	0.0	0.0	0.0
DISTILLATE FUEL IND	0.303	0.072	-0.681	0.014	0.056	0.015	0.0	0.0	0.0
RESIDUAL FUEL IND	0.149	0.016	0.032	-0.484	0.043	0.018	0.0	0.0	0.0
LIQUID GAS IND	0.222	0.047	0.030	0.013	-0.550	0.015	0.0	0.0	0.0
COAL IND	0.111	0.024	0.015	0.007	0.023	-0.406	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.115	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OTL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.074	0.0	0.0	0.0	-0.179	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.539	0.070	0.034	0.008	0.037	0.007	0.0	0.0	0.079
NATURAL GAS	0.131	-0.516	0.014	0.005	0.014	0.004	0.0	0.0	0.033
DISTILLATE FUEL	0.132	0.036	-0.935	0.002	0.023	0.003	0.344	0.0	-0.537
RESIDUAL FUEL	0.137	0.016	0.027	-0.544	0.028	0.012	0.0	0.0	-0.489
LIQUID GAS	0.109	0.027	0.015	0.005	-0.312	0.006	0.0	0.0	-0.413
OTHER PETROLEUM	0.0	0.0	0.047	0.0	-0.002	0.0	-0.113	0.0	-0.067
OIL	0.050	0.013	-0.135	-0.009	-0.062	0.002	-0.065	-0.008	-0.288
COAL	0.103	0.022	0.014	0.006	0.022	-0.377	0.0	0.0	0.042

TABLE 22 UNSCALED ELASTICITIES FOR DEMAND REGION 8 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	UTL
ELECTRICITY RES	-0.654	0.092	0.034	0.0	0.052	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.114	-0.597	-0.001	0.0	0.006	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.197	0.075	-0.798	0.0	0.049	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.060	0.033	0.004	0.0	-0.577	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.642	0.045	0.033	0.011	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.323	-0.950	0.053	0.022	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.081	0.005	-0.638	-0.003	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.123	0.012	0.009	-0.698	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.498	0.062	0.113	0.035	0.051	0.020	0.0	0.0	0.0
NATURAL GAS IND	0.111	-0.446	0.057	0.021	0.029	0.004	0.0	0.0	0.0
DISTILLATE FUEL IND	0.226	0.061	-0.607	0.033	0.048	0.020	0.0	0.0	0.0
RESIDUAL FUEL IND	0.124	0.017	0.067	-0.469	0.040	-0.002	0.0	0.0	0.0
LIQUID GAS IND	0.170	0.041	0.084	0.029	-0.556	0.011	0.0	0.0	0.0
COAL IND	0.085	0.021	0.042	0.014	0.020	-0.408	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.113	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPHTHA IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.134	0.0	0.0	0.0	-0.322	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.500	0.065	0.059	0.015	0.033	0.006	0.0	0.0	0.107
NATURAL GAS	0.137	-0.587	0.022	0.009	0.012	0.001	0.0	0.0	0.042
DISTILLATE FUEL	0.117	0.031	-0.826	0.012	0.023	0.008	0.287	0.0	-0.483
RESIDUAL FUEL	0.121	0.015	0.047	-0.550	0.023	-0.001	0.0	0.0	-0.479
LIQUID GAS	0.094	0.031	0.034	0.011	-0.484	0.004	0.0	0.0	-0.443
OTHER PETROLEUM	0.0	0.0	0.095	0.0	0.0	0.0	-0.227	0.0	-0.133
OIL	0.047	0.012	-0.159	-0.017	-0.040	0.003	-0.056	-0.015	-0.293
COAL	0.062	0.015	0.031	0.010	0.015	-0.298	0.0	0.0	0.056

TABLE 23 UNSCALED ELASTICITIES FOR DEMAND REGION 9 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	OIL
ELECTRICITY RES	-0.658	0.161	0.013	0.0	0.004	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.303	-0.797	0.013	0.0	0.001	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.284	0.159	-0.923	0.0	-0.001	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.065	0.037	0.002	0.0	-0.586	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.603	0.042	0.005	0.001	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.383	-0.953	0.012	0.003	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.088	0.003	-0.646	-0.002	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.136	0.011	-0.004	-0.699	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.426	0.090	0.042	0.027	0.038	0.010	0.0	0.0	0.0
NATURAL GAS IND	0.153	-0.453	0.026	0.018	0.024	0.008	0.0	0.0	0.0
DISTILLATE FUEL IND	0.294	0.095	-0.677	0.025	0.036	0.009	0.0	0.0	0.0
RESIDUAL FUEL IND	0.184	-0.022	0.037	-0.472	0.036	0.013	0.0	0.0	0.0
LIQUID GAS IND	0.228	0.048	0.034	0.024	-0.564	0.009	0.0	0.0	0.0
COAL IND	0.113	0.024	0.017	0.012	0.016	-0.409	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.115	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	-0.069	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.186	0.0	0.0	0.0	-0.447	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.552	0.090	0.020	0.010	0.015	0.003	0.0	0.0	0.045
NATURAL GAS	0.224	-0.406	0.019	0.010	0.013	0.004	0.0	0.0	0.042
DISTILLATE FUEL	0.108	0.038	-0.972	0.007	0.010	0.002	0.456	0.0	-0.459
RESIDUAL FUEL	0.082	-0.009	0.120	-0.291	0.015	0.005	0.0	0.0	-0.155
LIQUID GAS	0.129	0.020	0.019	0.013	-0.326	0.005	0.0	0.0	-0.295
OTHER PETROLEUM	0.0	0.0	0.120	0.0	-0.008	0.0	-0.286	0.0	-0.175
OIL	0.025	0.006	-0.039	-0.016	-0.015	0.001	-0.107	-0.035	-0.215
COAL	0.055	0.012	0.008	0.006	0.008	-0.197	0.0	0.0	0.022

TABLE 24 UNSCALED ELASTICITIES FOR DEMAND REGION 10 - 1990

	ELECTRICITY	NATURAL GAS	DISTILLATE	RESIDUAL FUEL	LIQUID GAS	COAL	GAS	JET FUEL	LIL
ELECTRICITY RES	-0.761	0.136	0.146	0.0	-0.003	0.0	0.0	0.0	0.0
NATURAL GAS RES	0.306	-0.890	0.101	0.0	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL RES	0.245	0.101	-0.823	0.0	-0.004	0.0	0.0	0.0	0.0
LIQUID GAS RES	0.060	0.022	0.023	0.0	-0.587	0.0	0.0	0.0	0.0
ELECTRICITY COM	-0.665	0.043	0.051	0.019	0.0	0.0	0.0	0.0	0.0
NATURAL GAS COM	0.293	-0.953	0.076	0.033	0.0	0.0	0.0	0.0	0.0
DISTILLATE FUEL COM	0.071	0.004	-0.627	-0.002	0.0	0.0	0.0	0.0	0.0
RESIDUAL FUEL COM	0.108	0.011	0.023	-0.696	0.0	0.0	0.0	0.0	0.0
ELECTRICITY IND	-0.468	0.088	0.085	0.044	0.011	0.022	0.0	0.0	0.0
NATURAL GAS IND	0.115	-0.434	0.045	0.026	0.007	0.015	0.0	0.0	0.0
DISTILLATE FUEL IND	0.257	0.087	-0.635	0.042	0.010	0.020	0.0	0.0	0.0
RESIDUAL FUEL IND	0.114	0.031	0.059	-0.463	0.012	0.023	0.0	0.0	0.0
LIQUID GAS IND	0.185	0.060	0.065	0.036	-0.587	0.019	0.0	0.0	0.0
COAL IND	0.092	0.030	0.032	0.018	0.005	-0.404	0.0	0.0	0.0
GASOLINE TRANS	0.0	0.0	0.115	0.0	0.0	0.0	-0.276	0.0	-0.161
DISTILLATE FUEL TRAN	0.0	0.0	-1.153	0.0	0.0	0.0	0.762	0.0	0.0
JET FUEL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.223	-0.223
RESIDUAL FUEL TRANS	0.0	0.0	0.191	-0.129	0.0	0.0	0.0	0.0	0.0
ELECTRICITY TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NATURAL GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS FEEDSTOCK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LIQUID GAS RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OIL RAW MAT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NAPTHA IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASPHALT COM	0.0	0.0	0.186	0.0	0.0	0.0	-0.447	0.0	0.0
COAL RES&COM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COAL TRANS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MET COAL IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELECTRICITY	-0.608	0.094	0.098	0.024	0.004	0.010	0.0	0.0	0.126
NATURAL GAS	0.185	-0.590	0.062	0.016	0.004	0.007	0.0	0.0	0.082
DISTILLATE FUEL	0.151	0.052	-0.823	0.011	0.002	0.006	0.214	0.0	-0.580
RESIDUAL FUEL	0.092	0.020	0.073	-0.467	0.006	0.012	0.0	0.0	-0.387
LIQUID GAS	0.066	0.021	0.023	0.011	-0.249	0.006	0.0	0.0	-0.217
OTHER PETROLEUM	0.0	0.0	0.083	0.0	0.0	0.0	-0.197	0.0	-0.115
OIL	0.052	0.017	-0.166	-0.033	-0.003	0.003	-0.069	-0.023	-0.299
COAL	0.091	0.030	0.032	0.018	0.005	-0.399	0.0	0.0	0.054

FIGURE II-2
PIES COAL REGIONS

The PRICE STEP column has entries for the minimum acceptable selling price the product will accept, given its rate of return. This price includes all direct costs, severance taxes, reclamation costs and other related costs and takes into consideration the producer's rate of return, miner productivity, black lung insurance, etc. Each price represents the lowest price at which mines will open (NEW MINES) or be brought into operation (EXISTING MINES).

Mine type names are not stated, but are listed in order of ascending price; thus, each price step represents a different mine type.

INCREMENTAL SUPPLY gives the maximum production or supply available at each price step. This supply is the amount of coal available from that mine type and is divided between surface mines and deep mines according to historical patterns. CUMULATIVE SUPPLY lists the total coal supply available to meet demand at each price step.

The CAPITAL column represents the present value of the cumulative investment required between 1978 and the target year to continue operating existing mines or to open each new mine. The units used are millions of 1975 dollars per thousand tons per calendar day.

The last table in each set, TOTAL COAL SUPPLY AT THE HIGHEST PRICE STEP, provides the regional and national production levels, assuming that the highest possible price level is realized by operating both new and existing mines. The regional production levels are also aggregated into EAST and WEST coal region totals. The last column gives the total regional supply of coal in millions of Btus per day. Conversion factors are given below the table under COAL TYPE DESCRIPTORS.

The two main sources for historical production data are the Bureau of Mines and the ICF, Inc. publication, "PIES Supply Curve Methodology," (Final Report for the FEA, under Contract No. CO-05-50198-00, December 1975). One of the main sources for capital data is "Basic Capital, Investment and Costs for Surface and Deep Mines," published in 1975 by the Bureau of Mines.

Other data sources are:

- Severance taxes: State offices
- Reclamation costs: regional questionnaires, Coal Analysis Division (DOE) estimates.
- Black lung insurance premium: Morgantown Process Evaluation Group
- All other data: Bureau of Mines, ICF, Inc., National Coal Model, Geological Survey, NCA, TRW, and numerous other sources.

A final documentation of the data sources for The National Coal Model is expected in mid-1978 from Arthur Young and Company.

1985 COAL SUPPLY DATA

INPUTS TO THE PIES INTEGRATING MODEL
1978 ANNUAL ADMINISTRATOR'S REPORT

GENERATION DATE 121977

COAL SUPPLY DATA

THE FOLLOWING TABLES PROVIDE PRODUCTION LEVELS FOR VARIOUS COAL TYPES. THE FIRST SET OF TABLES PROVIDE DAILY INCREMENTAL PRODUCTION BY REGION, BY COAL TYPE AND BY CORRESPONDING PRICE LEVELS. THESE PRICES ARE THE MINIMUM ACCEPTABLE PRICES, AND INCLUDE PRODUCTION COSTS AND THE ALLOWABLE (8%) RATE OF RETURN. PRODUCTION FROM EXISTING MINES APPEARS FIRST, FOLLOWED BY OUTPUT FROM NEW MINE OPENINGS. THESE TABLES ALSO PROVIDE QUANTITIES OF PRODUCTION WHICH ARE REALIZED FROM SURFACE AND/OR DEEP MINES. CAPITAL COSTS OF OPENING NEW MINES IS ALSO DISPLAYED. THESE COSTS REPRESENT THE TOTAL CAPITAL EXPENDITURE ASSOCIATED WITH NEW MINES.

THE LAST TABLE PROVIDES THE REGIONAL AND NATIONAL PRODUCTION LEVELS ASSUMING THE HIGHEST POSSIBLE PRICE LEVEL IS REALIZED. THE REGIONAL PRODUCTION LEVELS ARE ALSO AGGREGATED INTO EAST AND WEST COAL REGION TOTALS.

TABLE 1 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: HIGH BTU (23.0 MMBTU/TON)

HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.77	2.94	.12	3.06	2.94	.12	3.06	
	9.36	11.00	8.37	19.37	13.94	8.49	22.42	
	10.51	3.83	35.02	39.85	17.76	44.51	62.27	
	11.05	.36	4.06	4.41	19.12	48.57	66.68	
	11.53	18.26	44.70	62.95	36.37	93.26	129.64	
	12.11	3.79	9.05	12.83	40.16	102.31	142.47	
	12.67	8.49	9.95	17.54	48.65	111.36	160.01	
	13.25	1.01		1.01	49.66	111.36	161.02	
	13.89	1.01		1.01	50.67	111.36	162.03	
NEW MINES	12.75	2.60		2.60	2.60		2.60	14.01
	14.53	11.71		11.71	14.31		14.31	16.82
	15.94	2.60		2.60	16.92		16.92	19.68
	16.47	13.01		13.01	29.93		29.93	20.21
	18.48	13.01		13.01	42.95		42.95	23.62
	20.04		10.96	10.96	42.95	10.96	53.90	10.31
	20.96		27.40	27.40	42.95	38.36	81.30	12.53
	21.43		42.08	42.08	42.95	80.44	123.38	13.01
	22.01		27.84	27.84	42.95	108.27	151.22	14.44
	22.52	12.99	62.50	75.49	55.93	170.77	226.70	16.95
	23.04		49.10	49.10	55.93	219.97	275.79	14.29
	23.69		67.29	67.29	55.93	287.15	343.08	15.51
	24.23	14.91	51.31	66.12	70.74	338.47	409.21	20.46
	24.81	1.84	47.77	49.60	72.57	396.23	458.81	17.94
	25.25	2.87	44.93	47.79	75.44	431.16	506.60	18.17
	25.91		71.67	71.67	75.44	502.83	578.27	16.76
	26.61	35.16	65.17	101.33	110.60	569.00	679.60	23.79
	27.13		54.58	54.58	110.60	623.57	734.19	20.62
	27.77	5.21	25.42	30.63	115.81	649.00	764.81	22.11
	28.20	3.13	18.62	21.75	118.94	667.62	786.56	22.47
	28.85	1.31	9.86	11.16	120.25	677.48	797.72	23.93
	29.41	3.65	17.04	20.74	123.90	694.57	818.46	29.50
	29.93		8.33	8.33	123.40	702.89	826.79	24.28
	30.98		35.95	35.95	123.90	738.84	862.74	26.94
	31.99	2.86	12.05	14.92	126.76	750.89	877.66	33.86
	32.51	.52	21.04	21.56	127.28	771.94	899.22	31.87
	33.02		7.89	7.89	127.28	779.83	907.11	25.10
	33.78	3.64	13.50	17.23	130.92	793.42	924.34	38.66
	34.04		4.16	4.16	130.92	797.59	928.50	34.12
	34.52		6.36	6.36	130.92	803.94	934.86	32.11
	35.42		3.07	3.07	130.92	807.01	937.93	35.46
	35.75		11.62	11.62	130.92	818.63	949.54	34.53
	36.94		3.07	3.07	130.92	821.70	952.61	38.22
	37.43		5.04	5.04	130.92	826.74	957.65	39.11
	41.03	.78	2.19	2.97	131.70	828.93	960.63	49.57

PIES CODE: CH

DATA SOURCES : ICE INC., KRISTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRM, STATE OFFICERS, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 2 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.57	42.64	18.36	61.01	42.64	18.36	61.01	
	9.39	3.26	1.40	4.66	45.90	19.77	65.67	
NEW MINES	22.02		.22	.22		.22	.22	10.31
	22.66		1.10	1.10		1.31	1.31	15.35
	23.22		1.31	1.31		2.63	2.63	15.78
	24.20	2.34	1.10	3.44	2.34	3.73	6.07	31.87
	24.61		1.75	1.75	2.34	5.48	7.82	15.32
	25.19		2.19	2.19	2.34	7.67	10.01	16.98
	25.76		2.19	2.19	2.34	9.86	12.20	18.47
	26.60	2.60	2.85	5.45	4.94	12.71	17.66	25.20
	27.00		2.85	2.85	4.94	15.56	20.51	21.37
	28.13	3.12	2.85	5.97	8.07	18.41	26.48	35.38
	29.85		5.04	5.04	8.07	23.45	31.52	26.11
	31.13		1.75	1.75	8.07	25.21	33.27	30.39
	31.92	3.13	4.16	7.29	11.19	29.37	40.56	37.96
	32.71		5.26	5.26	11.19	34.63	45.82	33.19
	34.38		6.14	6.14	11.19	40.77	51.96	33.78
	35.70		2.85	2.85	11.19	43.62	54.81	38.22
	37.48		2.41	2.41	11.19	46.03	57.22	39.11
	47.18	6.77		6.77	17.96	46.03	63.99	78.94

PIES CODE: CW

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, FRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 3 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)

MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.77	.78		.78	.78		.78	
	9.34	.46	.04	.50	1.23	.04	1.27	
	10.52	2.69	2.02	4.71	3.92	2.06	5.98	
	11.51	17.48	9.17	26.65	21.40	11.23	32.63	
	11.61	.42	.23	.65	21.82	11.46	33.28	
	12.12	3.58	1.92	5.50	25.40	13.38	38.78	
	12.63	23.52	11.38	34.90	48.92	24.75	73.67	
	13.25	4.30	2.02	6.32	53.22	26.78	80.00	
	13.89	4.30	2.02	6.32	57.52	28.80	86.32	
NEW MINES	14.59	1.30		1.30	1.30		1.30	16.81
	16.77	2.61	4.38	6.99	3.91	4.38	8.29	13.04
	17.20	1.30	8.77	10.07	5.21	13.15	18.36	10.84
	18.48	2.60		2.60	7.81	13.15	20.96	23.62
	19.17	1.30	2.19	3.49	9.11	15.34	24.45	14.90
	20.15		13.15	13.15	9.11	28.49	37.60	10.12
	20.89		29.59	29.59	9.11	58.08	67.19	12.95
	21.51		49.53	49.53	9.11	107.61	116.73	12.66
	22.11		35.51	35.51	9.11	143.12	152.23	15.33
	22.58		53.70	53.70	9.11	196.82	205.93	13.81
	23.00		53.70	53.70	9.11	250.52	259.63	14.18
	23.54		69.48	69.48	9.11	320.00	329.11	15.71
	24.17	2.87	56.98	59.85	11.98	376.97	388.96	15.52
	24.72	2.83	57.45	60.29	14.82	434.43	449.25	18.17
	25.33	3.11	37.27	40.38	17.93	471.70	489.63	18.45
	26.01		82.63	82.63	17.93	554.33	572.26	16.33
	26.64	7.81	26.30	34.11	25.74	580.63	606.37	22.36
	27.22		20.38	20.38	25.74	601.01	626.75	20.38
	27.76	7.79	27.63	35.42	33.53	628.64	662.18	22.62
	28.20	3.13	10.30	13.42	36.66	638.94	675.60	25.95
	28.78	1.30	2.19	3.49	37.96	641.13	679.09	30.66
	29.35	2.60	7.67	10.27	40.56	648.81	689.37	29.80
	29.84		9.42	9.42	40.56	658.23	698.79	26.48
	30.44		10.08	10.08	40.56	668.31	708.87	29.85
	31.10		13.81	13.81	40.56	682.12	722.68	26.03
	32.27	.26	5.48	5.74	40.82	687.60	728.42	32.10
	32.94	1.30	7.24	8.53	42.12	694.84	736.96	29.67
	33.76	1.30	8.99	10.29	43.41	703.43	747.24	36.25
	34.99		3.95	3.95	43.41	707.77	751.19	31.25
	35.33		3.95	3.95	43.41	711.72	755.13	37.32
	35.75		7.45	7.45	43.41	719.17	762.59	32.11
	36.40		8.55	8.55	43.41	727.72	771.13	34.22
	38.63		6.58	6.58	43.41	734.29	777.71	39.11
	47.42	1.30		1.30	44.72	734.29	779.01	78.94
	49.49	4.16		4.16	48.88	734.29	783.17	78.94

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, PRV, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 4 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: MEDIUM BTB (21.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.58 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.57	.48		.48	.48		.48	
	9.34	.04		.04	.51		.51	
NEW MINES	24.35	.26		.26	.26		.26	39.22
	24.90		.22	.22	.26	.22	.48	11.48
	26.81		1.10	1.10	.26	1.31	1.58	20.53
	28.26	.26	.88	1.14	.52	2.19	2.71	28.89
	29.86		2.63	2.63	.52	4.82	5.34	26.03
	31.13		.88	.88	.52	5.70	6.22	30.39
	31.91	.26	1.53	1.79	.78	7.23	8.01	29.45
	32.72		2.41	2.41	.78	9.64	10.42	32.66
	34.39		2.19	2.19	.78	11.84	12.62	33.67
	35.70		1.10	1.10	.78	12.93	13.71	38.22
	37.48		1.10	1.10	.78	14.03	14.81	39.11
	47.18	1.04		1.04	1.82	14.03	15.85	78.94

PIES CODE: CS

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 5 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: METALLURGICAL COAL (27.0 MMBTU/TON)
LOW SULPHUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	11.27	2.84	5.90	8.75	2.84	5.90	8.75	
	11.83	.33	.67	1.00	3.17	6.58	9.75	
	12.60	3.12	8.70	11.82	6.29	15.28	21.57	
	13.25	.77	2.21	2.98	7.06	17.49	24.54	
	13.89	.77	2.21	2.98	7.83	19.70	27.52	
NEW MINES	25.25		.41	.41		.41	.41	10.38
	26.59		.82	.82		1.23	1.23	11.00
	27.15		1.03	1.03		2.26	2.26	16.37
	27.90		1.85	1.85		4.11	4.11	15.10
	28.41		2.05	2.05		6.16	6.16	18.31
	29.30		3.08	3.08		9.25	9.25	13.60
	29.90	.22	5.34	5.56	.22	14.59	14.81	17.89
	30.53		3.70	3.70	.22	18.29	18.51	19.86
	31.49		8.01	8.01	.22	26.30	26.52	17.60
	32.08		5.34	5.34	.22	31.65	31.86	18.55
	33.01		8.22	8.22	.22	39.86	40.08	20.32
	33.66		1.85	1.85	.22	41.71	41.93	20.70
	34.03	.44	2.05	2.49	.66	43.77	44.42	18.94
	34.60		2.67	2.67	.66	46.44	47.10	26.61
	35.17		4.52	4.52	.66	50.96	51.62	24.64
	35.93	1.97	3.08	5.05	2.63	54.04	56.67	24.83
	36.36		4.52	4.52	2.63	58.56	61.19	30.21
	37.15		7.60	7.60	2.63	66.17	68.79	21.10
	37.97		6.58	6.58	2.63	72.74	75.37	32.83
	38.54	2.19	3.08	5.27	4.82	75.82	80.64	29.87
	39.42	.44	2.67	3.11	5.26	78.49	83.75	35.60
	40.01		9.04	9.04	5.26	87.53	92.79	22.70
	40.94	2.41	1.23	3.64	7.67	88.77	96.44	40.25
	41.29		8.84	8.84	7.67	97.60	105.27	34.77
	41.76		1.03	1.03	7.67	98.63	106.30	25.03
	43.27		3.70	3.70	7.67	102.33	110.00	41.72
	44.32		5.55	5.55	7.67	107.87	115.55	35.27
	45.14		6.16	6.16	7.67	114.04	121.71	18.08
	45.88		.62	.62	7.67	114.66	122.33	25.90
	47.01	2.41	1.44	3.85	10.08	116.10	126.18	51.69
	47.39		1.03	1.03	10.08	117.12	127.20	39.80
	48.40		3.08	3.08	10.08	120.20	130.29	33.33
	50.65		2.05	2.05	10.08	122.26	132.34	26.77
	51.33		3.29	3.29	10.08	125.55	135.63	39.89
	58.80	3.29	3.70	6.99	13.37	129.24	142.61	58.41

PIES CODE: CM

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.
OFFICE RESPONSIBLE: COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 6 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: HIGH Btu (23.8 MMBTU/TON)

LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	10.52	.38		.38	.38		.38	
	11.05	.04		.04	.43		.43	
	11.57	.04		.04	.47		.47	
NEW MINES	22.87		.22	.22		.22	.22	10.31
	24.27		.22	.22		.44	.44	10.90
	25.59	.26	.22	.48	.26	.66	.92	26.54
	27.66		.22	.22	.26	.89	1.14	12.06
	29.32	.52		.52	.78	.88	1.66	47.16
	31.08		.22	.22	.78	1.10	1.88	24.28
	33.46	.52		.52	1.30	1.10	2.40	55.10
	33.99		.22	.22	1.30	1.31	2.62	31.25
	35.85		.22	.22	1.30	1.53	2.83	32.11
	37.08		.22	.22	1.30	1.75	3.05	38.22
	49.08	1.56		1.56	2.86	1.75	4.62	78.94

PIES CODE: CI

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, MCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 7 : PIES COAL SUPPLY REGION - CENTRAL APPALACHIA

COAL TYPE: HIGH BTU (23.9 MMBTU/TON)
HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.32	2.80	2.58	5.38	2.80	2.58	5.38	
	10.18	2.39	8.62	11.01	5.19	11.20	16.39	
	10.96	.95	5.01	5.96	6.14	16.21	22.35	
	14.66		22.82	22.82	6.14	39.03	45.16	
	15.39		2.40	2.40	6.14	41.43	47.57	
	16.13		2.40	2.40	6.14	43.84	49.97	
NEW MINES	14.51	1.30		1.30	1.30		1.30	13.40
	24.16	.26		.26	1.56		1.56	31.27
	24.74	.26		.26	1.82		1.82	31.27
	25.59		.22	.22	1.82	.22	2.04	10.90
	27.41		.88	.88	1.82	1.10	2.92	11.48
	28.21	.52		.52	2.34	1.10	3.44	39.22
	28.60	.52	.22	.74	2.86	1.31	4.18	31.00
	29.57		.88	.88	2.96	2.19	5.05	12.06
	30.69		.66	.66	2.66	2.95	5.71	15.86
	32.49	.52	.66	1.18	3.38	3.51	6.89	34.39
	33.37	.52	.22	.74	3.90	3.73	7.63	42.19
	35.02		1.10	1.10	3.90	4.82	8.73	28.79
	36.61		.44	.44	3.90	5.26	9.16	29.17
	37.26	.52	.44	.96	4.43	5.70	10.12	44.59
	38.17	.52	.44	.96	4.95	6.14	11.08	47.38
	39.19		.22	.22	4.95	6.35	11.30	32.11
	40.32		.44	.44	4.95	6.79	11.74	39.11
	42.14		.22	.22	4.95	7.01	11.96	39.11
	100.00	1.56		1.56	6.51	7.01	13.52	78.94

PIES CODE: CH

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRV, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 8 : PIES COAL SUPPLY REGION - CENTRAL APPALACHIA

COAL TYPE: HIGH BTU (23.9 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.32	3.43	1.94	5.37	3.43	1.94	5.37	
	10.20	23.11	43.69	66.80	26.55	45.63	72.18	
	10.97	16.11	31.83	47.94	42.65	77.46	120.11	
	11.60	2.98	18.80	21.78	45.64	96.26	141.89	
	12.18	1.31	4.55	5.87	46.95	100.81	147.76	
	12.98	1.44	13.41	14.85	48.39	114.22	162.61	
	13.67	.42	5.58	6.00	48.81	119.80	168.61	
	14.56	.42	20.74	21.17	49.24	140.54	189.78	
	15.39		1.60	1.60	49.24	142.14	191.37	
	16.13		1.60	1.60	49.24	143.74	192.97	
	17.80	.13	1.45	1.57	49.36	145.19	194.55	
NEW MINES	14.51	1.30		1.30	1.30		1.30	13.40
	20.80		2.19	2.19	1.30	2.19	3.49	9.73
	22.10		2.63	2.63	1.30	4.82	6.12	9.97
	23.00		2.19	2.19	1.30	7.01	8.31	12.71
	23.53		3.29	3.29	1.30	10.30	11.60	12.18
	24.10	1.56	1.09	2.66	2.86	11.40	14.26	24.53
	24.63	1.04	5.48	6.52	3.91	16.87	20.78	15.13
	25.14		2.19	2.19	3.91	19.06	22.97	10.90
	26.09		5.48	5.48	3.91	24.54	28.45	12.94
	26.90		10.30	10.30	3.91	34.85	38.75	12.79
	27.45		4.16	4.16	3.91	39.01	42.92	16.55
	28.33	1.82	2.19	4.01	5.73	41.20	46.93	27.31
	28.86	1.30	10.52	11.82	7.03	51.72	58.75	16.54
	29.18		2.41	2.41	7.03	54.13	61.16	18.67
	29.93		2.63	2.63	7.03	56.76	63.79	25.42
	30.26		1.97	1.97	7.03	58.74	65.77	23.46
	31.18	1.30	4.82	6.12	8.33	63.56	71.89	20.44
	32.01	1.30	5.92	7.22	9.63	69.48	79.11	25.68
	32.72	1.82		1.82	11.46	69.48	80.93	45.03
	33.23	1.30	2.19	3.49	12.76	71.67	84.42	37.37
	34.16		6.14	6.14	12.76	77.80	90.56	24.72
	34.76		4.38	4.38	12.76	82.19	94.94	33.36
	36.36		2.19	2.19	12.76	84.38	97.14	27.54
	36.90	.52	5.04	5.56	13.28	89.42	102.70	32.87
	37.87	.26	3.73	3.99	13.54	93.14	106.68	38.68
	38.21	1.30		1.30	14.84	93.14	107.98	53.36
	39.19		2.63	2.63	14.84	95.77	110.61	32.11
	39.89		3.73	3.73	14.84	99.50	114.34	38.43
	42.14		1.75	1.75	14.84	101.25	116.09	39.11
	100.00	3.64		3.64	18.49	101.25	119.74	73.60

PIES CODE: CH

DATA SOURCES : ICM INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, PRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 9 : PIES COAL SUPPLY REGION - CENTRAL APPALACHIA

COAL TYPE: METALLURGICAL COAL (27.0 MBTU/TON)
LOW SULFUR (LESS THAN 0.67 LB/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.74	2.84	1.14	3.98	2.84	1.14	3.98	
	10.55	.92	.17	1.29	3.76	1.51	5.27	
	11.08	24.94		24.94	29.69	1.51	30.20	
	11.60	10.62	59.97	70.59	59.31	61.49	120.79	
	12.18	10.40	6.32	16.72	69.71	67.80	137.51	
	13.22	7.73	7.30	15.03	77.41	75.10	152.54	
	13.67	3.70	3.51	7.20	81.13	78.61	159.74	
	14.32	3.70	3.51	7.20	94.82	82.12	166.94	
	17.80	2.38	6.31	8.70	87.21	88.43	175.64	
NEW MINES	17.98	1.10		1.10	1.10		1.10	14.30
	18.82	5.48		5.48	6.58		6.58	14.30
	20.34	1.10		1.10	7.67		7.67	17.93
	21.22	7.67		7.67	15.34		15.34	17.93
	21.62	1.10		1.10	16.44		16.44	17.93
	22.91	1.10	2.05	3.15	17.53	2.05	19.59	14.27
	23.87	7.67	2.05	9.73	25.21	4.11	29.31	19.33
	24.33	1.09	11.31	12.40	26.30	15.41	41.71	12.05
	25.18		8.22	8.22	26.30	23.63	49.93	13.47
	25.78	1.10	6.37	7.47	27.40	30.00	57.40	13.86
	26.34	1.09	10.29	11.37	28.49	40.28	68.77	15.05
	26.84	6.57	5.14	11.71	35.06	45.42	80.49	19.71
	27.51	1.10	13.15	14.25	36.16	58.57	94.73	14.01
	28.14		12.33	12.33	36.16	70.90	107.05	14.32
	28.42		16.03	16.03	36.16	86.93	123.08	13.25
	29.16	.43	18.30	18.73	36.59	105.22	141.81	15.47
	29.76	1.31	10.28	11.59	37.90	115.50	153.40	18.87
	30.21	1.53	16.03	17.56	39.42	131.53	170.96	15.24
	30.77		21.99	21.99	39.42	153.52	192.94	15.29
	31.31	4.39	25.06	29.45	41.81	178.58	222.40	16.76
	31.97	1.76	8.22	9.97	43.57	186.80	232.37	20.75
	32.51	6.37	14.78	21.15	51.93	201.59	253.52	21.68
	33.01	2.85	9.04	11.89	54.79	210.62	265.41	20.18
	33.54		18.70	18.70	54.79	229.32	284.11	16.06
	34.29	.65	6.17	6.82	55.44	235.49	290.93	21.18
	35.02	1.97	12.33	14.30	57.42	247.82	305.23	18.60
	35.85		13.97	13.97	57.42	261.79	319.20	15.33
	36.42		9.66	9.66	57.42	271.45	328.86	20.77
	37.12	1.32	5.34	6.66	58.73	276.79	335.52	25.31
	37.45		1.03	1.03	58.73	277.81	336.55	22.26
	38.11	2.41	12.54	14.95	61.14	290.35	351.49	19.40
	38.55	2.19	4.93	7.12	63.33	295.28	358.61	26.27
	39.18	.66	10.68	11.34	63.99	305.97	364.96	23.74
	39.92	3.29	3.91	7.19	67.28	309.87	377.15	28.09
	47.96	26.56	79.69	106.25	93.34	389.56	483.40	39.59

PIES CODE: CM

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTHAU PROCESS EVALUATION GROUP, NCA, FRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 10 : PIES COAL SUPPLY REGION - CENTRAL APPALACHIA

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	10.20	10.22		10.22	10.22		10.22	
	10.96	6.57		6.57	16.79		16.79	
	11.61	2.26	.89	3.15	19.05	.89	19.94	
	12.10	1.08	.43	1.51	20.14	1.31	21.45	
	12.78	1.08	.43	1.51	21.22	1.74	22.96	
	14.66	3.02		3.02	24.24	1.74	25.97	
	15.39	.32		.32	24.55	1.74	26.29	
	16.11	.32		.32	24.87	1.74	26.61	
NEW MINES	14.63	2.60		2.60	2.60		2.60	13.40
	16.63	2.60		2.60	5.21		5.21	16.81
	18.77	2.60		2.60	7.81		7.81	20.21
	21.03	2.60	1.09	3.70	10.41	1.09	11.51	19.50
	22.13		3.95	3.95	10.41	5.04	15.45	9.89
	23.00		2.19	2.19	10.41	7.23	17.64	12.71
	23.55		3.73	3.73	10.41	10.96	21.37	11.96
	24.16	1.56	1.09	2.66	11.97	12.05	24.03	25.50
	24.66	2.08	3.29	5.37	14.06	15.34	29.40	20.11
	25.16		2.63	2.63	14.06	17.97	32.03	10.90
	25.99		1.10	1.10	14.06	19.06	33.12	17.62
	26.91		6.58	6.58	14.06	25.64	39.70	13.83
	27.46		1.10	1.10	14.06	26.74	40.79	17.62
	28.36	2.08	1.97	4.05	16.14	28.71	44.85	30.19
	28.87	3.12	6.36	9.48	19.26	35.07	54.33	22.32
	29.97		2.19	2.19	19.26	37.26	56.52	26.59
	30.26		1.31	1.31	19.26	38.57	57.83	23.46
	31.17	5.20	2.41	7.62	24.46	40.99	65.45	29.45
	31.91	3.90	2.63	6.53	29.36	43.62	71.99	29.93
	32.87	2.08	1.97	4.05	30.45	45.59	76.04	40.11
	33.39	3.12		3.12	33.57	45.59	79.16	47.16
	34.14		3.29	3.29	33.57	48.88	82.45	27.04
	34.79		4.16	4.16	33.57	53.04	86.61	32.70
	35.06		1.97	1.97	33.57	55.02	88.59	37.32
	36.73		2.85	2.85	33.57	57.87	91.44	29.96
	37.23		1.53	1.53	33.57	59.40	92.97	31.85
	38.17	1.12	.44	3.56	36.69	59.84	96.53	52.92
	39.19		.88	.88	36.69	60.71	97.41	32.11
	39.80		1.75	1.75	36.69	62.47	99.16	39.44
	42.14		.66	.66	36.69	63.13	99.82	19.11
	100.00	9.89		9.89	46.58	63.13	109.71	78.94

PIES CODE: CI

DATA SOURCES : ICE INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, MCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, MCA.
OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, MCA.

TABLE 11 : PIES COAL SUPPLY REGION - SOUTHERN APPALACHIA

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	12.74	21.01	12.66	33.67	21.01	12.66	33.67	
	13.74	5.91	3.15	9.06	26.92	15.81	42.73	
	14.02	1.26	.76	2.02	28.18	16.57	44.75	
	14.54	.28	.14	.42	28.46	16.72	45.17	
	15.23	.29	.14	.42	28.74	16.86	45.59	
NEW MINES	28.33		4.38	4.38		4.38	4.38	12.06
	33.55		1.97	1.97		6.36	6.36	25.10
	36.32		1.97	1.97		8.33	8.33	32.11
	39.30		1.31	1.31		9.64	9.64	39.11

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NEA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 12 : PIES COAL SUPPLY REGION - SOUTHERN APPALACHIA

COAL TYPE: METALLURGICAL COAL (27.0 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	13.85	3.33		3.33	3.33		3.33	
	14.54	.20		.20	3.53		3.53	
	15.23	.20		.20	3.73		3.73	
NEW MINES	28.33		1.97	1.97		1.97	1.97	12.06
	31.55		1.75	1.75		3.73	3.73	25.10
	36.32		1.75	1.75		5.48	5.48	32.11
	39.30		1.31	1.31		6.79	6.79	39.11
	46.52		.21	.21		7.00	7.00	12.87
	52.09		.21	.21		7.21	7.21	26.77
	55.00		.21	.21		7.41	7.41	34.25

PIES CODE: CM

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 13 : PIES COAL SUPPLY REGION - MIDWEST

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)

HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.45	12.49	.22	12.71	12.49	.22	12.71	
	8.18	.15	.01	.15	12.64	.22	12.86	
	8.71	6.47	5.14	11.61	19.11	5.56	24.67	
	9.58	.04	.03	.07	19.15	5.59	24.74	
NEW MINES	12.31	7.81		7.81	7.81		7.81	14.01
	13.15	5.21		5.21	13.01		13.01	14.01
	13.93	7.81		7.81	20.82		20.82	16.83
	14.77	6.51		6.51	27.33		27.33	16.84
	15.56	6.51		6.51	33.84		33.84	19.79
	16.39	6.50	4.39	10.89	40.34	4.39	44.73	15.36
	16.81	1.30		1.30	41.64	4.39	46.03	20.21
	17.64	1.30	13.15	14.45	42.94	17.54	60.48	10.52
	17.96	1.30		1.30	44.24	17.54	61.78	23.62
	18.84	1.30		1.30	45.54	17.54	63.08	23.62
	20.01	5.21	19.72	24.93	50.75	37.26	88.01	16.67
	20.59	10.41	10.96	21.37	61.16	48.22	109.38	20.71
	21.21		17.53	17.53	61.16	65.76	126.92	14.18
	21.71	7.80	28.50	36.30	68.96	94.25	163.22	17.90
	22.32	2.60	30.69	33.29	71.56	124.95	196.51	16.63
	22.81	5.21	21.92	27.12	76.77	146.86	223.63	18.13
	23.38	1.05	35.06	36.11	77.82	181.92	259.74	16.85
	24.84		30.68	30.68	77.82	212.61	290.42	16.66
	24.52	1.83	19.72	21.55	79.65	232.33	311.97	19.41
	25.06		29.37	29.37	79.65	261.69	341.34	18.67
	25.71	9.10	13.16	22.26	88.75	274.85	363.60	24.30
	26.26		20.38	20.38	88.75	295.23	383.99	19.41
	26.88	6.51	13.58	20.10	95.26	308.82	404.08	24.56
	27.54	1.04	11.62	12.66	96.30	320.44	416.74	23.29
	28.05		7.45	7.45	96.30	327.89	424.19	24.67
	29.18		10.52	10.52	96.30	338.41	434.71	27.24
	30.72		8.11	8.11	96.30	346.52	442.82	32.17
	31.19	.52		.52	96.82	346.52	443.34	46.40
	45.55	.78		.78	97.60	346.52	444.12	66.48

PIES CODE: CH

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 14 : PIES COAL SUPPLY REGION - MIDWEST

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
HIGH SULFUR (GREATER THAN 4.60 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.08	91.18	48.67	139.85	91.18	48.67	139.85	
	7.86	48.04	56.39	104.42	139.22	105.06	244.28	
	8.45	.53	.63	1.16	139.75	105.69	245.44	
NEW MINES	11.52	5.21		5.21	5.21		5.21	13.31
	12.56	20.82		20.82	26.03		26.03	14.51
	14.09	27.33		27.33	53.36		53.36	17.19
	15.72	22.12		22.12	75.48		75.48	19.84
	16.62		131.51	131.51	75.48	131.51	206.99	9.18
	18.17	14.32		14.32	89.79	131.51	221.30	24.57
	20.02	26.04	113.96	140.00	115.83	245.47	361.30	16.31
	20.49		52.60	52.60	115.83	298.07	413.90	14.96
	21.21		116.16	116.16	115.83	414.23	530.07	14.66
	21.78		99.73	99.73	115.83	513.96	629.79	15.70
	22.31	31.25	131.49	162.74	147.08	645.45	792.53	18.68
	22.95		28.49	28.49	147.08	673.95	821.03	16.76
	23.52	2.62	64.64	67.26	149.70	738.58	888.29	17.90
	24.09		28.49	28.49	149.70	767.08	916.78	17.62
	24.70	1.02	62.49	63.51	150.72	829.57	980.29	18.18
	25.25		39.67	39.67	150.72	869.24	1019.96	20.72
	25.87	3.91	15.34	19.25	154.63	884.58	1039.20	22.53
	26.41		6.36	6.36	154.63	890.93	1045.56	20.93
	27.03	2.60	3.29	5.89	157.23	894.22	1051.45	24.23
	27.82		7.45	7.45	157.23	901.67	1058.90	26.53
	28.94	1.04	5.04	6.09	158.27	906.71	1064.99	26.92
	29.18		3.29	3.29	158.27	910.00	1068.27	29.53
	30.69		11.62	11.62	158.27	921.62	1079.89	30.53
	32.61	1.04		1.04	159.31	921.62	1080.93	46.40
	47.37	1.30		1.30	160.61	921.62	1082.23	66.48

PIES CODE: CW

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, FIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, FIA.

TABLE 15 : PIES COAL SUPPLY REGION - MIDWEST

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.44	.44		.44	.44		.44	
	8.19	.09		.09	.45		.45	
	8.71	3.01	4.50	7.51	3.46	4.50	7.96	
	9.58	.02	.02	.04	3.48	4.53	8.00	
NEW MINES	14.14	1.30		1.30	1.30		1.30	16.81
	15.36	1.30	4.38	5.68	2.60	4.38	6.99	11.40
	17.96	1.30		1.30	3.90	4.38	8.29	23.62
	20.09		32.88	32.88	3.90	37.26	41.16	13.94
	20.58		19.73	19.73	3.90	56.99	60.89	14.86
	21.35		15.34	15.34	3.90	72.33	76.23	14.53
	21.90	2.60	17.54	20.14	6.50	89.87	96.37	17.35
	22.41		21.92	21.92	6.50	111.79	118.29	16.50
	22.98	.52	8.77	9.29	7.02	120.55	127.58	19.02
	23.53	.27	17.53	17.79	7.29	138.08	145.37	17.49
	24.11		8.77	8.77	7.29	146.85	154.14	17.62
	24.72	.26	12.93	13.19	7.55	159.78	167.33	19.01
	25.30	1.31	17.09	18.40	8.86	176.87	185.73	22.04
	25.97	1.30	4.16	5.47	10.16	181.03	191.19	23.70
	26.46		7.89	7.89	10.16	188.92	199.08	22.65
	27.39	.78	.98	1.66	10.94	189.80	200.74	34.63
	27.95		19.07	19.07	10.94	208.87	219.81	26.52
	28.89	.26	.66	.92	11.20	209.52	220.73	28.66
	29.24		15.56	15.56	11.20	225.09	236.29	27.09
	30.63		9.64	9.64	11.20	234.73	245.93	30.85
	31.08	.78	10.08	10.86	11.98	244.81	256.79	36.93
	32.17		13.91	13.91	11.98	258.62	270.60	34.37
	32.61	.26		.26	12.24	258.62	270.86	46.40
	33.56		6.79	6.79	12.24	265.41	277.66	36.98
	34.99		3.95	3.95	12.24	269.36	281.60	38.22
	36.40		.44	.44	12.24	269.80	282.04	39.11
	45.55	.52		.52	12.76	269.80	282.56	78.94
	47.37	1.04		1.04	13.81	269.80	283.60	66.48

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRU, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 16 : PIES COAL SUPPLY REGION - MIDWEST

COAL TYPE: MEDIUM BTU (21.9 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.02	5.45		5.45	5.45		5.45	
	7.85	.92		.92	6.37		6.37	
	8.45	.01		.01	6.38		6.38	
NEW MINES	13.94	1.30		1.30	1.30		1.30	16.81
	15.78	1.30		1.30	2.60		2.60	20.21
	17.75	1.30		1.30	3.90		3.90	23.62
	20.16		6.58	6.58	3.90	6.58	10.48	14.30
	21.27		4.38	4.38	3.90	10.96	14.86	14.53
	21.81	2.60	5.48	8.08	6.51	16.44	22.94	19.86
	22.34		7.67	7.67	6.51	24.11	30.62	16.72
	22.90		2.19	2.19	6.51	26.30	32.81	16.76
	23.46	1.30	4.38	5.68	7.81	30.69	38.49	22.21
	24.04		2.19	2.19	7.81	32.88	40.68	17.62
	24.65	.78	4.38	5.16	8.59	37.26	45.85	21.23
	25.17		6.58	6.58	8.59	43.84	52.42	21.27
	25.85	2.60	3.29	5.89	11.19	47.12	58.31	25.29
	26.45		5.04	5.04	11.19	52.16	63.36	21.82
	27.05	1.90	1.09	3.00	13.10	53.26	66.36	34.46
	27.82		6.79	6.79	13.10	60.05	73.15	25.57
	28.28	.78	1.53	2.31	14.88	61.59	76.46	34.91
	29.14		8.55	8.55	14.88	70.14	85.01	26.24
	29.73		.66	.66	14.88	70.79	85.67	28.67
	30.64		9.64	9.64	15.88	80.44	96.31	29.94
	31.06	1.30	2.19	3.49	17.18	82.63	99.81	41.69
	31.99		7.67	7.67	17.18	90.30	107.48	32.58
	32.61	.78	1.31	2.10	17.96	91.61	109.57	41.21
	33.55		4.60	4.60	17.96	96.22	114.18	34.26
	34.12		.66	.66	17.96	96.87	114.83	36.42
	34.96		3.29	3.29	17.96	100.16	118.12	38.22
	35.50		.66	.66	17.96	100.82	118.78	37.32
	36.52		2.19	2.19	17.96	103.01	120.97	39.11
	37.03		.44	.44	17.96	103.45	121.41	38.22
	45.34	2.34		2.34	20.30	103.45	123.75	78.94
	47.37	.26		.26	20.56	103.45	124.01	78.94

PIES CODE: CS

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 17 : PIRS COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
HIGH SULFUR (GREATER THAN 1.60 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.77	2.22		2.22	2.22		2.22	
	9.43	4.78		4.78	7.00		7.00	
	10.36	.22		.22	7.22		7.22	
NEW MINES	24.30		1.10	1.10		1.10	1.10	16.98
	24.96		1.75	1.75		2.85	2.85	19.73
	25.44		1.10	1.10		3.94	3.94	19.97
	26.22	3.90	1.53	5.40	3.90	5.48	9.38	30.01
	26.81	1.30	1.10	2.40	5.21	6.57	11.78	25.00
	27.37		1.31	1.31	5.21	7.89	13.10	23.46
	27.87	1.56	.44	2.00	6.77	8.33	15.10	43.11
	28.66	.78	1.53	2.31	7.55	9.86	17.41	29.49
	29.16		.44	.44	7.55	10.30	17.85	29.53
	30.24		3.73	3.73	7.55	14.03	21.57	26.97
	30.94		.44	.44	7.55	14.46	22.01	35.52
	31.65	2.60	2.19	4.79	10.15	16.66	26.81	44.20
	32.29	1.30	.44	1.74	11.45	17.09	28.55	43.89
	33.17		3.07	3.07	11.45	20.16	31.62	34.34
	34.62		2.19	2.19	11.45	22.35	33.81	38.22
	36.13		1.75	1.75	11.45	24.11	35.56	39.11
	45.71	4.68		4.68	15.14	24.11	40.25	78.94
	46.34	3.64		3.64	19.78	24.11	43.89	66.48

PIRS CODE: CH

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 18 : PIES COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	6.30	12.15		12.15	12.15		12.15	
	6.90	1.50		1.50	13.65		13.65	
NEW MINES	16.80		2.74	2.74		2.74	2.74	12.84
	17.67		9.59	9.59		12.33	12.33	13.66
	18.42	1.30	6.85	8.15	1.30	19.18	20.48	16.03
	19.13		5.48	5.48	1.30	24.65	25.96	15.37
	19.77		4.66	4.66	1.30	29.31	30.62	16.20
	20.70		4.11	4.11	1.30	33.42	34.73	18.08
	22.00		10.41	10.41	1.30	43.93	45.14	19.15
	23.15		9.59	9.59	1.30	53.42	54.73	20.43
	23.69		2.19	2.19	1.30	55.61	56.92	17.62
	24.31		14.79	14.79	1.30	70.41	71.71	21.84
	24.89		7.01	7.01	1.30	77.42	78.73	18.68
	25.50		18.08	18.08	1.30	95.50	96.81	22.58
	26.35	5.20	9.05	14.25	6.50	104.55	111.05	29.30
	26.74		4.38	4.38	6.50	108.93	115.44	20.86
	27.27		2.63	2.63	6.50	111.56	118.07	23.46
	27.88	2.08	3.29	5.37	8.59	114.85	123.44	37.44
	28.65		7.89	7.89	8.59	122.74	131.33	24.28
	30.16		8.11	8.11	8.59	130.85	139.44	26.67
	31.56	2.60	9.21	11.81	11.19	140.06	151.25	36.51
	32.34	.26		.26	11.45	140.06	151.51	46.40
	33.06		9.86	9.86	11.45	149.92	161.37	33.39
	34.53		9.21	9.21	11.45	159.13	170.57	38.22
	36.04		7.45	7.45	11.45	166.58	178.03	39.11
	45.71	6.77		6.77	19.21	166.58	184.79	78.94
	46.34	.78		.78	19.99	166.58	185.57	66.48

PIES CODE: CW

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 19 : PIES COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	10.36	.22		.22	.22		.22	
	10.87	.01		.01	.23		.23	
	11.39	.01		.01	.24		.24	
	15.34	1.08		1.08	1.33		1.33	
	16.11	.36		.36	1.69		1.69	
	16.87	.36		.36	2.05		2.05	
NEW MINES	25.11		.22	.22		.22	.22	21.83
	26.29		.22	.22		.44	.44	22.65
	27.77		.44	.44		.88	.88	26.07
	28.47	1.56		1.56	1.56	.88	2.44	30.36
	29.02		1.10	1.10	1.56	1.97	3.53	25.31
	29.91	.78		.78	2.34	1.97	4.31	39.71
	30.58		1.53	1.53	2.34	3.51	5.85	27.34
	32.02	.52	1.31	1.84	2.86	4.82	7.68	36.16
	33.53	1.82	1.53	3.36	4.69	6.35	11.04	40.21
	34.34		1.10	1.10	4.69	7.45	12.14	38.22
	36.39		1.31	1.31	4.69	8.77	13.45	39.11
	40.49	.22		.22	4.91	8.77	13.67	55.10
	46.34	1.56		1.56	6.47	8.77	15.23	66.48
	49.07	4.42		4.42	10.89	8.77	19.66	66.48

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 20 : PIES COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: SUB-BITUMINOUS (19.3 MMBTU/TON)
MEDIUM SUDOR (GREATER THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	6.37	1.74		1.74	1.74		1.74	
	6.93	.35		.35	2.09		2.09	
NEW MINES	16.80		2.74	2.74		2.74	2.74	12.84
	17.66		6.85	6.85		9.59	9.59	13.72
	18.40		4.11	4.11		13.70	13.70	14.70
	19.13		5.48	5.48		19.18	19.18	15.37
	19.76		3.84	3.84		23.01	23.01	15.78
	20.68		3.56	3.56		26.58	26.58	17.97
	22.02		4.93	4.93		31.51	31.51	20.82
	23.16		4.66	4.66		36.16	36.16	23.07
	24.34		4.38	4.38		40.55	40.55	26.55
	25.52		5.21	5.21		45.75	45.75	28.32
	26.66		2.74	2.74		48.49	48.49	30.57
	27.90		1.92	1.92		50.41	50.41	31.29

PIES CODE: CV

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
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OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 21 : PIES COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: METALLURGICAL COAL (27.0 MBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	10.36	.78		.78	.78		.78	
	10.87	.04		.04	.82		.82	
	11.39	.04		.04	.87		.87	
NEW MINES	32.34	.26		.26	.26		.26	46.40
	32.99		.41	.41	.26	.41	.67	25.90
	34.66		.62	.62	.26	1.03	1.29	26.77
	36.00	.22	.62	.84	.48	1.64	2.12	36.96
	37.69		.82	.82	.48	2.47	2.94	34.25
	39.24		.62	.62	.48	3.08	3.56	40.76
	40.77	.44	.92	1.26	.92	3.90	4.82	46.38
	57.11	1.53		1.53	2.45	3.90	6.36	81.95
	58.74	1.31		1.31	3.77	3.90	7.67	78.94

PIES CODE: CM

DATA SOURCES : JCF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 22 : PIFS COAL SUPPLY REGION - GULF

COAL TYPE: LIGNITE (13.0 MMBTU/TON)
MEDIUM SULFUR (GREATER THAN 0.6% LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			COMMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	2.47	27.42		27.42	27.42		27.42	
NEW MINES	6.09	24.66		24.66	24.66		24.66	4.10
	6.93	43.84		43.84	68.49		68.49	5.60
	7.41	35.62		35.62	104.11		104.11	6.25
	8.12	60.27		60.27	164.38		164.38	7.42
	8.63	32.88		32.88	197.26		197.26	8.49
	9.43	32.88		32.88	230.14		230.14	8.78
	9.92	10.96		10.96	241.10		241.10	10.64
	10.91	10.96		10.96	252.05		252.05	10.96
	11.71	1.64		1.64	253.70		253.70	12.31
	12.64	2.74		2.74	256.44		256.44	13.45
	15.05	1.37		1.37	257.81		257.81	19.66
	18.46	1.37		1.37	259.18		259.18	25.02
	21.93	.82		.82	260.00		260.00	31.37
	23.41		.27	.27	260.00	.27	260.27	19.42
	25.61		.27	.27	260.00	.55	260.55	25.00
	27.96		.27	.27	260.00	.82	260.82	30.57

PIES CODE: CU

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, FRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
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OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 23 : PIES COAL SUPPLY REGION - EASTERN NORTHERN GREAT PLAINS

COAL TYPE: LIGNITE (13.0 MMBTU/TON)
MEDIUM SUPPLY (GREATER THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	2.47	20.87		20.87	20.87		20.87	
	3.10	1.36		1.36	22.23		22.23	
NEW MINES	7.62	427.40		427.40	427.40		427.40	6.18
	8.43	328.77		328.77	756.16		756.16	7.02
	9.16	246.57		246.57	1002.74		1002.74	8.12
	9.76	143.84		143.84	1146.57		1146.57	8.78
	10.65	13.70		13.70	1160.27		1160.27	8.58
	11.12	61.64		61.64	1221.92		1221.92	10.12
	11.77	6.85		6.85	1228.77		1228.77	10.91
	12.34	10.96		10.96	1239.72		1239.72	10.64
	13.23	16.44		16.44	1256.16		1256.16	10.96
	13.76	2.74		2.74	1258.90		1258.90	12.31
	15.23	13.70		13.70	1272.60		1272.60	13.46
	17.46	5.48		5.48	1278.08		1278.08	16.17
	17.99	3.56		3.56	1281.64		1281.64	19.66
	21.29		5.48	5.48	1281.64	5.48	1287.12	14.18
	22.16	3.56	2.74	6.30	1285.20	8.22	1293.42	21.08
	25.32		5.21	5.21	1285.20	13.43	1298.63	19.42
	26.65	3.56		3.56	1288.76	13.43	1302.19	31.37
	27.59		6.85	6.85	1288.76	20.28	1309.04	25.00
	30.03		6.85	6.85	1288.76	27.12	1315.89	30.57
	31.13	1.37		1.37	1290.13	27.12	1317.26	37.73

PIES CODE: CH

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 24 : PIES COAL SUPPLY REGION - EASTERN NORTHERN GREAT PLAINS

COAL TYPE: LIGNITE (13.0 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	2.47	1.21		1.21	1.21		1.21	
NEW MINES	7.60	19.18		19.18	19.18		19.18	6.19
	8.37	21.92		21.92	41.10		41.10	6.66
	9.16	17.91		17.81	58.90		58.90	7.88
	9.77	13.70		13.70	72.60		72.60	8.48
	11.22	8.22		8.22	80.82		80.82	9.67
	13.26	4.11		4.11	84.93		84.93	11.04
	13.76	.82		.82	85.75		85.75	12.31
	15.26	1.37		1.37	87.12		87.12	13.45
	17.46	1.37		1.37	88.49		88.49	16.17
	17.99	.55		.55	89.04		89.04	18.66
	22.28	.55		.55	89.59		89.59	25.02
	25.32		.27	.27	89.86	.27	89.86	19.42
	26.65	.55		.55	90.41	.27	90.41	31.37
	27.59		.55	.55	90.14	.82	90.96	25.00
	30.03		.55	.55	90.14	1.37	91.51	30.57
	31.13	.27		.27	90.41	1.37	91.78	37.73

PIES CODE: CY

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 25 : PIES COAL SUPPLY REGION - WESTERN NORTHERN GREAT PLAINS

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)		CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	SURFACE	DEEP	TOTAL	
EXISTING MINES	4.84	7.25		7.25		7.25	
NEW MINES	7.04	5.21		5.21		5.21	5.22
	7.59	5.21		10.41		10.41	5.50
	8.34	5.21		15.62		15.62	7.91
	8.99	7.81		23.42		23.42	9.31
	9.75	5.21		28.63		28.63	10.61
	10.49	7.81		36.44		36.44	11.17
	11.19	5.21		41.64		41.64	13.31
	12.07	8.59		50.23		50.23	14.13
	12.67	5.21		55.44		55.44	16.00
	13.66	7.81		63.25		63.25	16.84
	14.21	5.21		68.45		68.45	18.70
	15.37	7.81		76.26		76.26	19.68
	16.13	1.04		77.30		77.30	23.33
	18.19		13.15	77.30	13.15	90.45	9.23
	19.35		10.96	77.30	24.11	101.41	11.17
	19.79	11.45	5.49	88.75	29.60	118.34	22.27
	20.67		4.11	88.75	33.70	122.45	11.62
	21.21		4.11	88.75	37.81	126.56	12.72
	21.88	5.22	26.02	91.96	63.83	157.79	16.31
	22.39		13.15	93.96	76.98	170.94	14.90
	23.24		12.05	93.96	89.04	183.00	14.89
	23.96	1.03	12.06	95.00	101.10	196.10	17.66
	24.47		19.73	95.00	120.82	215.82	16.72
	24.98		5.48	95.00	126.30	221.30	16.76
	25.60		2.19	95.00	128.50	223.49	17.17
	26.23		1.10	95.00	129.59	224.59	17.62
	26.83		1.10	95.00	130.69	225.68	19.07
	27.62		6.58	95.00	137.26	232.26	22.57
	28.83		2.19	95.00	139.45	234.45	21.04
	30.49		4.66	95.00	144.11	239.11	24.92
	30.77		4.38	95.00	148.49	243.49	28.41
	31.84		3.07	95.00	151.56	246.56	26.41
	31.59		4.66	95.00	156.22	251.22	31.42
	34.98		3.07	95.00	159.29	254.29	32.85
	36.98		3.34	95.00	162.63	257.63	35.03

PIES CODE: CS

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 26 : PIES COAL SUPPLY REGION - WESTERN NORTHERN GREAT PLAINS

COAL TYPE: SUB-BITUMINOUS (13.3 MBTU/TON)

MEDIUM SUEP (GREATER THAN 0.67 LBS/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	3.92	11.59		11.59	11.59		11.59	
NEW MINES	6.66	65.07		65.07	65.07		65.07	4.90
	7.04	62.47		62.47	127.53		127.53	5.22
	7.71	135.34		135.34	262.88		262.88	6.55
	8.35	97.60		97.60	360.48		360.48	7.79
	9.07	137.94		137.94	498.42		498.42	9.19
	9.85	123.63		123.63	622.05		622.05	10.76
	10.54	117.12		117.12	739.18		739.18	11.84
	11.23	109.31		109.31	848.49		848.49	13.50
	12.00	131.44		131.44	979.93		979.93	14.42
	12.67	113.48		113.48	1093.41		1093.41	16.11
	13.56	131.44		131.44	1224.85		1224.85	17.20
	14.21	88.49		88.49	1313.34		1313.34	18.70
	15.42	76.78		76.78	1390.12		1390.12	19.78
	16.13	4.42		4.42	1394.54		1394.54	23.33
	17.50	35.14		35.14	1429.68		1429.68	23.82
	18.02		17.53	17.53	1429.68	17.53	1447.22	9.01
	19.89	.78		.78	1430.46	17.51	1448.00	31.27
	21.90	5.21	8.76	13.97	1435.67	26.30	1461.97	19.26
	22.40		6.58	6.58	1435.67	32.87	1468.54	14.83
	23.19		5.48	5.48	1435.67	38.35	1474.02	15.08
	23.74	.78	5.48	6.26	1436.46	43.83	1480.28	19.29
	24.48		4.66	4.66	1436.46	48.49	1484.94	17.33
	25.98		.55	.55	1436.46	49.01	1485.49	18.12
	26.60		1.75	1.75	1436.46	50.79	1487.24	21.83
	27.53	.78	5.21	5.99	1437.23	55.99	1493.23	25.11
	27.88		.22	.22	1437.23	56.21	1493.45	22.65
	29.92		1.64	1.64	1437.23	57.86	1495.09	20.82
	29.52		1.75	1.75	1437.23	59.61	1496.84	28.67
	30.61		6.25	6.25	1437.23	65.86	1503.09	27.13
	31.84	.78	1.64	2.42	1438.01	67.50	1505.51	35.63
	32.57		1.75	1.75	1438.01	69.25	1507.27	35.52
	33.70		4.88	4.88	1438.01	74.11	1512.14	33.26
	34.95		1.10	1.10	1438.01	75.21	1513.24	30.57
	36.62		.82	.82	1438.01	76.95	1514.06	31.29
	46.24	.52		.52	1438.53	76.05	1514.58	78.94

PIES CODE: CV

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, EPA, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 27 : PIPS COAL SUPPLY REGION - WESTERN NORTHERN GREAT PLAINS

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	4.84	20.35		20.35	20.35		20.35	
NEW MINES	7.59	2.60		2.60	2.60		2.60	5.50
	9.05	3.97		3.97	6.58		6.58	7.28
	10.34	3.90		3.90	10.48		10.48	10.78
	11.07	1.37		1.37	11.85		11.85	8.00
	11.98	3.90		3.90	15.75		15.75	13.81
	12.42	.78		.78	16.53		16.53	15.38
	13.12	1.37		1.37	17.90		17.90	10.72
	13.69	4.45		4.45	22.36		22.36	16.28
	15.51	5.27	5.48	10.75	27.61	5.48	33.11	12.50
	15.88	.26	10.96	11.22	27.88	16.45	44.33	7.92
	18.04	2.40	8.76	11.16	30.28	25.21	55.49	11.66
	18.37		4.38	4.38	30.28	29.59	59.88	9.67
	19.35		21.92	21.92	30.28	51.51	81.79	11.17
	19.81	.27	16.43	16.70	30.55	67.94	98.49	12.22
	20.66		16.44	16.44	30.55	84.38	114.93	11.89
	21.26		16.44	16.44	30.55	100.82	131.37	12.65
	21.82	2.60	27.95	30.55	33.15	128.77	161.92	14.70
	22.33	1.10	11.23	12.33	34.24	140.00	174.25	15.00
	23.04		20.27	20.27	34.24	160.28	194.52	13.99
	23.67	.26	13.42	13.68	34.50	173.70	208.21	15.44
	24.27		19.45	19.45	34.50	193.15	227.66	15.72
	24.79		16.71	16.71	34.50	209.86	244.37	16.88
	25.56	1.31	9.31	10.62	35.81	219.18	254.99	18.90
	26.07		8.77	8.77	35.81	227.94	263.75	17.93
	26.78	1.10	3.29	4.38	36.91	231.23	268.14	22.14
	27.43	.26	11.18	11.44	37.17	242.41	279.57	20.94
	28.77		2.63	2.63	37.17	245.04	282.20	22.65

PIES CODE: CZ

DATA SOURCES : ICE INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 28 : PIES COAL SUPPLY REGION - WESTERN NORTHERN GREAT PLAINS

COAL TYPE: SUB-BITUMINOUS (14.3 MMBTU/TON)
LOW SULFUR (LESS THAN 0.57 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	3.52	81.43	1.16	82.63	81.43	1.16	82.63	
NEW MINES	7.14	237.81		237.81	237.81		237.81	3.96
	7.61	251.23		251.23	489.04		489.04	4.32
	8.41	463.90		463.90	952.94		952.94	5.37
	9.09	361.92		361.92	1314.86		1314.86	6.39
	9.92	499.52		499.52	1814.38		1814.38	7.43
	10.67	327.67		327.67	2142.05		2142.05	8.69
	11.38	328.42		328.42	2470.48		2470.48	9.00
	11.69	237.12		237.12	2707.60		2707.60	10.50
	45.24	.26		.26	2707.86		2707.86	78.94

PIES CODE: CX

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTHAU PROCESS EVALUATION GROUP, NCA, PRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 29 : PIES COAL SUPPLY REGION - ROCKIES

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)

MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.83		.01	.01		.01	.01	
NEW MINES	11.53	6.51		6.51	6.51		6.51	10.47
	13.13	10.41		10.41	15.92		15.92	13.55
	14.85	7.81		7.81	24.73		24.73	16.81
	16.96	3.12		3.12	27.85		27.85	22.03
	20.73	4.43	2.19	6.62	32.28	2.19	34.47	25.42
	22.55		3.29	3.29	32.28	5.48	37.75	14.53
	23.09		3.29	3.29	32.28	8.77	41.04	15.90
	23.64		4.38	4.38	32.28	13.15	45.42	16.79
	24.33	4.42	1.10	5.52	36.70	14.25	50.94	34.76
	24.93		2.19	2.19	36.70	16.44	53.14	17.17
	25.45		1.10	1.10	36.70	17.53	54.23	17.62
	26.01		1.10	1.10	36.70	18.63	55.33	19.07
	26.60		3.51	3.51	36.70	22.14	58.83	21.83
	27.99	1.56	1.31	2.88	38.26	23.45	61.71	35.96
	29.46		4.82	4.82	38.26	28.27	66.53	27.25
	30.84		3.73	3.73	38.26	32.00	70.26	26.14
	32.50		6.14	6.14	38.26	38.14	76.40	32.19
	33.78		3.73	3.73	38.26	41.86	80.12	33.07
	35.36		2.63	2.63	38.26	44.49	82.75	34.71
	36.80		2.41	2.41	38.26	46.90	85.16	38.22
	38.51		1.31	1.31	38.26	48.22	86.48	39.11

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 10 : PIES COAL SUPPLY REGION - ROCKIES

COAL TYPE: MEDIUM BTU (21.3 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.21		2.07	2.07		2.07	2.07	
NEW MINES	21.07		2.19	2.19		2.19	2.19	13.62

PIES CODE: CS

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 31 : PIES COAL SUPPLY REGION - ROCKIES

COAL TYPE: METALLURGICAL COAL (27.0 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.83		9.06	9.06		9.06	9.06	
NEW MINES	30.51		2.47	2.47		2.47	2.47	23.29
	31.89		.41	.41		2.88	2.88	24.16
	33.55		1.23	1.23		4.11	4.11	28.73
	34.99		.41	.41		4.52	4.52	31.50
	36.75		1.23	1.23		5.75	5.75	36.06
	38.25		.41	.41		6.16	6.16	38.84
	39.76		.41	.41		6.57	6.57	39.80

PIES CODE: CM

DATA SOURCES : ICP INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 12 : PIES COAL SUPPLY REGION - ROCKIES

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	13.35		17.81	17.81		17.81	17.81	
NEW MINES	13.09	1.30		1.30	1.30		1.30	13.40
	14.85	1.30		1.30	2.60		2.60	16.81
	17.14	.78		.78	3.38		3.38	21.33
	20.98	.79	10.95	11.74	4.17	10.95	15.12	14.92
	21.44		10.96	10.96	4.17	21.91	26.08	14.71
	22.43		5.48	5.48	4.17	27.39	31.56	14.53
	22.96		5.48	5.48	4.17	32.87	37.04	15.90
	23.54		9.86	9.86	4.17	42.73	46.90	16.42
	24.18	.78	4.38	5.16	4.95	47.12	52.07	20.15
	24.75		8.77	8.77	4.95	55.89	60.84	17.17
	25.36		4.38	4.38	4.95	60.27	65.22	17.62
	25.92		4.38	4.38	4.95	64.65	69.60	19.07
	26.44		6.79	6.79	4.95	71.45	76.40	21.83
	27.80		3.07	3.07	4.95	74.52	79.47	22.65
	28.09	.26	.26	.26	5.21	74.52	79.73	47.16
	29.13		5.92	5.92	5.21	80.43	85.64	25.97
	29.52		3.95	3.95	5.21	84.39	89.59	28.67
	30.69		3.07	3.07	5.21	87.45	92.66	29.53
	30.86		2.41	2.41	5.21	89.86	95.07	24.20
	32.05		5.92	5.92	5.21	95.78	100.99	32.86
	32.58		5.92	5.92	5.21	101.69	106.90	32.04
	33.64		3.07	3.07	5.21	104.76	109.97	32.36
	33.85		2.41	2.41	5.21	107.17	112.38	36.42
	34.67		.66	.66	5.21	107.83	113.04	37.32
	35.35		4.38	4.38	5.21	112.21	117.42	34.97
	36.80		2.41	2.41	5.21	114.62	119.83	38.22
	38.51		2.19	2.19	5.21	116.82	122.03	39.11

PIES CODE: CI

DATA SOURCES : ICF INC., EGYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, MCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 33 : PLES COAL SUPPLY REGION - ROCKIES

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.21	2.51	8.03	10.53	2.51	8.03	10.53	
NEW MINES	11.63	3.90		3.90	3.90		3.90	10.79
	13.16	5.21		5.21	9.11		9.11	13.71
	14.85	2.60		2.60	11.71		11.71	16.81
	17.14	2.08		2.08	13.79		13.79	23.33
	20.91	3.64	4.38	8.03	17.44	4.38	21.82	21.63
	21.47		8.77	8.77	17.44	13.15	30.59	14.65
	22.55		3.29	3.29	17.44	16.44	33.88	14.53
	23.09		3.29	3.29	17.44	19.73	37.16	15.90
	23.65		5.48	5.48	17.44	25.20	42.64	16.50
	24.31	3.64	2.19	5.84	21.08	27.40	48.48	30.78
	24.93		4.38	4.38	21.08	31.78	52.86	17.17
	25.45		2.19	2.19	21.08	33.97	55.05	17.62
	26.01		2.19	2.19	21.08	36.17	57.25	19.07
	26.60		3.29	3.29	21.08	39.45	60.53	21.83
	27.97	1.56	2.19	3.75	22.64	41.65	64.29	32.85
	29.43		5.48	5.48	22.64	47.12	69.77	26.59
	30.83		5.26	5.26	22.64	52.38	75.03	26.47
	32.45		6.58	6.58	22.64	58.96	81.60	32.07
	33.74		5.26	5.26	22.64	64.22	86.86	33.40
	35.33		3.29	3.29	22.64	67.51	90.15	35.58
	36.80		3.07	3.07	22.64	70.58	93.22	38.22
	38.51		.22	.22	22.64	70.80	93.44	39.11

PIRS CODE: CZ

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 34 : PIES COAL SUPPLY REGION - SOUTHWEST

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
MEDIUM SULPHUR (0.67 TO 1.64 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	4.19	38.73	2.83	41.55	38.73	2.83	41.55	
NEW MINES	4.02	26.03		26.03	26.03		26.03	7.66
	8.85	26.30		26.30	52.33		52.33	7.99
	9.65	26.03		26.03	78.36		78.36	10.49
	10.27	20.96		20.96	99.32		99.32	10.88
	11.64	13.22		13.22	112.53		112.53	12.91
	13.14	6.71		6.71	119.25		119.25	14.76
	15.17	.55		.55	119.79		119.79	18.66
	18.48	.82		.82	120.62		120.62	25.02
	22.03	.82	2.19	3.01	121.44	2.19	123.63	19.12
	22.63		2.19	2.19	121.44	4.38	125.82	15.90
	24.16		2.19	2.19	121.44	6.57	128.01	17.27
	25.32	.27		.27	121.71	6.57	128.29	37.73
	26.16		2.19	2.19	121.71	8.77	130.48	21.83
	27.44		.44	.44	121.71	9.20	130.92	22.65
	29.03		2.63	2.63	121.71	11.83	133.55	27.81
	30.34		.44	.44	121.71	12.27	133.99	29.51
	32.02		2.63	2.63	121.71	14.90	136.62	34.66
	33.37		.44	.44	121.71	15.34	137.05	36.42
	34.79		.44	.44	121.71	15.78	137.49	37.32

PIES CODE: CS

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, MCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 15 : PIES COAL SUPPLY REGION - SOUTHWEST

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	4.19	1.45		1.45	1.45		1.45	
NEW MINES	9.26	15.62		15.62	15.62		15.62	7.91
	8.86	13.01		13.01	28.63		28.63	8.33
	9.68	14.32		14.32	42.95		42.95	10.44
	10.29	13.01		13.01	55.96		55.96	11.17
	11.67	6.51		6.51	62.47		62.47	13.64
	13.36	1.30		1.30	63.77		63.77	16.81
	22.10		1.10	1.10	63.77	1.10	64.86	14.53
	22.63		1.10	1.10	63.77	2.19	65.96	15.90
	23.16		1.10	1.10	63.77	3.29	67.05	17.27
	26.16		1.31	1.31	63.77	4.60	68.37	21.83
	27.44		.44	.44	63.77	5.04	68.81	22.65
	29.01		1.75	1.75	63.77	6.79	70.56	27.37
	30.34		.44	.44	63.77	7.23	71.00	29.53
	31.99		1.75	1.75	63.77	8.99	72.75	34.24
	33.37		.44	.44	63.77	9.42	73.19	36.42
	34.79		.44	.44	63.77	9.86	73.63	37.32

PIES CODE: C2

DATA SOURCES : ICP INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 36 : PIES COAL SUPPLY REGION - NORTHWEST

COAL TYPE: SUB-BITUMINOUS (18.1 MMBTU/TON)
MEDIUM SUDOR (GREATER THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.93	10.05		10.05	10.05		10.05	
NEW MINES	9.39	2.60		2.60	2.60		2.60	9.41
	10.71	5.21		5.21	7.91		7.91	11.54
	12.30	5.21		5.21	13.01		13.01	14.17
	13.95	5.21		5.21	18.22		18.22	16.80
	15.91	2.60		2.60	20.82		20.82	19.89
	17.94	5.21		5.21	26.03		26.03	22.55
	19.71	7.81		7.81	33.84		33.84	23.74
	22.97	1.90		3.90	37.74		37.74	28.49

PIES CODE: CV

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, MCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 37 : PIES COAL SUPPLY REGION - ALASKA

COAL TYPE: SUB-BITUMINOUS (19.3 MBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	3.38	2.14		2.14	2.14		2.14	
NEW MINES	22.19		26.30	26.30		26.30	26.30	9.23
	26.88		21.92	21.92		48.22	48.22	13.96
	27.40		10.96	10.96		59.18	59.18	14.99
	28.65		12.05	12.05		71.23	71.23	14.53
	29.34		12.05	12.05		83.29	83.29	15.90
	30.04		12.05	12.05		95.34	95.34	17.27
	33.92		10.96	10.96		106.30	106.30	21.83
	37.71		10.96	10.96		117.26	117.26	28.67
	41.65		11.18	11.18		128.44	128.44	35.52
	100.00	.26		.26	.26	128.44	128.70	78.94

PIES CODE: CX

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 38 : TOTAL COAL SUPPLY AT THE HIGHEST PRICE STEP

PTES COAL REGIONS	HI-BTU HI-S	MED-BTU HI-S	HI-BTU MED-S	MED-BTU MED-S	LO-BTU MED-S	VLO-BTU MED-S	VHI-BTU LO-S	HI-BTU LO-S	MED-BTU LO-S	LO-BTU LO-S	VLO-BTU LO-S	TOTAL BTUS (MILLIONS OF BTU PER DAY)
(THOUSANDS OF TONS PER DAY)												
NORTHERN APPALACHIA	1122.7	129.7	869.5	16.4			170.1	5.1				55311.0
CENTRAL APPALACHIA	61.5		314.3				659.0	136.3				30029.4
SOUTHERN APPALACHIA			55.2				11.1					1615.5
MIDWEST	468.9	1327.7	291.6	130.4								49804.7
TOTAL EAST	1655.0	1457.3	1530.6	146.8			840.3	141.4				136980.6
CENTRAL WEST	51.1	199.2	21.7		52.5		8.5					7269.0
GULF						288.2						3747.1
N.E. GREAT PLAINS						1339.5					93.0	18622.2
N.W. GREAT PLAINS				264.9	1528.2				302.5	2790.5		91521.0
ROCKIES			86.5	4.1			14.6	139.8	104.0			8141.1
SOUTHWEST				179.0					75.1			5539.8
NORTHWEST					47.8							876.0
ALASKA										130.8		2398.2
TOTAL WEST	51.1	199.2	108.2	448.2	1628.5	1627.7	23.2	139.8	481.6	2921.3	93.0	138124.3
NATIONAL TOTALS	1706.1	1656.5	1638.8	594.9	1628.5	1627.7	863.5	281.2	481.6	2921.3	93.0	274964.9

DATA SOURCES : JCP INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS, MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.
COAL TYPE DESCRIPTORS

HI-BTU/HI-S	HIGH BTU (23.8 MMBTU/TON)
MED-BTU/HI-S	HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)
HI-BTU/MED-S	MEDIUM BTU (21.8 MMBTU/TON)
MED-BTU/MED-S	HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)
LO-BTU/MED-S	HIGH BTU (23.8 MMBTU/TON)
VLO-BTU/MED-S	MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)
VHI-BTU/LO-S	MEDIUM BTU (21.8 MMBTU/TON)
HI-BTU/LO-S	MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)
MED-BTU/LO-S	SUB-BITUMINOUS (18.3 MMBTU/TON)
LO-BTU/LO-S	MEDIUM SULFUR (GREATER THAN 0.67 LBS/MMBTU)
VLO-BTU/LO-S	LIGNITE (13.0 MMBTU/TON)
	MEDIUM SULFUR (GREATER THAN 0.67 LBS/MMBTU)
	METALLURGICAL COAL (27.0 MMBTU/TON)
	LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)
	HIGH BTU (23.8 MMBTU/TON)
	LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)
	MEDIUM BTU (21.8 MMBTU/TON)
	LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)
	SUB-BITUMINOUS (18.3 MMBTU/TON)
	LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)
	LIGNITE (13.0 MMBTU/TON)
	LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

1990 COAL SUPPLY DATA

INPUTS TO THE PIES INTEGRATING MODEL
1978 ANNUAL ADMINISTRATOR'S REPORT

GENERATION DATE 121977

COAL SUPPLY DATA

THE FOLLOWING TABLES PROVIDE PRODUCTION LEVELS FOR VARIOUS COAL TYPES. THE FIRST SET OF TABLES PROVIDE DAILY INCREMENTAL PRODUCTION BY REGION, BY COAL TYPE AND BY CORRESPONDING PRICE LEVELS. THESE PRICES ARE THE MINIMUM ACCEPTABLE PRICES, AND INCLUDE PRODUCTION COSTS AND THE ALLOWABLE (8%) RATE OF RETURN. PRODUCTION FROM EXISTING MINES APPEARS FIRST, FOLLOWED BY OUTPUT FROM NEW MINE OPENINGS. THESE TABLES ALSO PROVIDE QUANTITIES OF PRODUCTION WHICH ARE REALIZED FROM SURFACE AND/OR DEEP MINES. CAPITAL COSTS OF OPENING NEW MINES IS ALSO DISPLAYED. THESE COSTS REPRESENT THE TOTAL CAPITAL EXPENDITURE ASSOCIATED WITH NEW MINES.

THE LAST TABLE PROVIDES THE REGIONAL AND NATIONAL PRODUCTION LEVELS ASSUMING THE HIGHEST POSSIBLE PRICE LEVEL IS REALIZED. THE REGIONAL PRODUCTION LEVELS ARE ALSO AGGREGATED INTO EAST AND WEST COAL REGION TOTALS.

TABLE 1 : PIRS COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: HIGH RTU (23.8 MMBTU/TON)

HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.77	2.45	.10	2.55	2.45	.10	2.55	
	9.36	9.17	6.97	16.14	11.61	7.07	18.69	
	10.51	3.19	30.02	33.20	14.80	37.09	51.89	
	11.05	.30	3.38	3.68	15.10	40.47	55.57	
	11.53	15.21	37.25	52.46	30.31	77.72	108.03	
	12.11	3.16	7.54	10.70	33.47	85.26	118.73	
	12.67	7.07	7.54	14.62	40.54	92.80	133.34	
	13.25	.84		.84	41.38	92.80	134.10	
	13.89	.84		.84	42.22	92.80	135.02	
NEW MINES	12.75	2.60		2.60	2.60		2.60	14.33
	14.53	11.71		11.71	14.31		14.31	17.21
	15.94	2.60		2.60	16.92		16.92	20.15
	16.47	13.01		13.01	29.93		29.93	20.69
	18.48	13.01		13.01	42.95		42.95	24.18
	20.04		10.96	10.96	42.95	10.96	53.90	10.84
	20.96		27.40	27.40	42.95	38.36	81.30	13.15
	21.43		42.08	42.08	42.95	80.44	123.38	13.63
	22.01		27.84	27.84	42.95	108.27	151.22	15.14
	22.52	12.98	62.50	75.48	55.93	170.77	226.70	17.63
	23.04		49.10	49.10	55.93	219.87	275.79	14.95
	23.69		67.29	67.29	55.93	287.15	343.08	16.21
	24.28	14.81	51.31	66.12	70.74	338.47	409.21	21.19
	24.81	1.84	47.77	49.60	72.57	386.23	458.81	18.67
	25.26	2.87	44.93	47.79	75.44	431.16	506.60	18.94
	25.91		71.67	71.67	75.44	502.83	578.27	17.49
	26.61	35.16	66.17	101.33	110.60	569.00	679.60	24.59
	27.13		54.58	54.58	110.60	623.57	734.18	21.39
	27.77	5.21	25.42	30.63	115.81	649.00	764.81	22.89
	28.20	3.13	18.62	21.75	118.94	667.62	786.56	23.27
	28.85	1.31	9.96	11.16	120.25	677.48	797.72	24.79
	29.41	3.65	17.09	20.74	123.90	694.57	818.46	30.29
	29.93		8.33	8.33	123.90	702.89	826.79	25.07
	30.98		35.95	35.95	123.90	738.84	862.74	27.69
	31.94	2.86	12.05	14.92	125.76	750.89	877.66	34.73
	32.51	.52	21.04	21.56	127.28	771.94	899.22	32.64
	33.02		7.89	7.89	127.28	779.83	907.11	25.93
	33.70	3.64	13.60	17.23	130.92	793.42	924.34	39.52
	34.04		4.16	4.16	130.92	797.59	928.50	34.89
	34.52		6.36	6.36	130.92	803.94	934.86	32.93
	35.42		3.07	3.07	130.92	807.01	937.93	36.23
	35.75		11.62	11.62	130.92	818.63	949.54	35.34
	36.99		3.07	3.07	130.92	821.70	952.61	39.00
	37.48		5.04	5.04	130.92	826.74	957.65	39.94
	41.03	.78	2.19	2.97	131.70	828.93	960.63	50.69

PIRS CODE: CH

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 2 : PIES COAL SUPPLY REGION - NORTHEEN APPALACHIA

COAL TYPE: MEDIUM BTU (21.9 MMBTU/TON)
HIGH SULPHUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.57	35.54	15.30	50.84	35.54	15.30	50.84	
	9.39	2.71	1.17	3.88	38.25	16.47	54.72	
NEW MINES	22.02		.22	.22		.22	.22	10.84
	22.66		1.10	1.10		1.31	1.31	16.06
	23.22		1.31	1.31		2.63	2.63	16.46
	24.20	2.14	1.10	3.44	2.34	3.73	6.07	32.73
	24.61		1.75	1.75	2.34	5.48	7.82	16.00
	25.19		2.14	2.14	2.34	7.67	10.01	17.77
	25.76		2.19	2.19	2.34	9.86	12.20	19.26
	26.60	2.60	2.85	5.45	4.94	12.71	17.66	25.99
	27.00		2.85	2.85	4.94	15.56	20.51	22.13
	28.13	3.12	2.85	5.97	4.07	18.41	26.48	36.33
	29.85		5.04	5.04	4.07	23.45	31.52	26.87
	31.13		1.75	1.75	4.07	25.21	33.27	31.14
	31.92	3.13	4.16	7.29	11.19	29.37	40.56	38.99
	32.71		5.26	5.26	11.19	34.63	45.82	33.94
	34.38		6.14	6.14	11.19	40.77	51.96	34.58
	35.70		2.85	2.85	11.19	43.62	54.81	39.00
	37.48		2.41	2.41	11.19	46.03	57.22	39.94
	47.14	6.77		6.77	17.96	46.03	63.99	80.85

PIES CODE: CW

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 3 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	

EXISTING MINES	9.77	.65		.65	.65		.65	
	9.78	.18	.03	.42	1.03	.03	1.06	
	10.52	2.24	1.68	3.92	3.27	1.72	4.98	
	11.51	14.57	7.64	22.21	17.84	9.36	27.19	
	11.61	.35	.19	.54	18.18	9.55	27.73	
	12.12	2.98	1.60	4.58	21.17	11.15	32.31	
	12.63	19.60	9.48	29.08	40.77	20.63	61.39	
	13.25	3.58	1.69	5.27	44.35	22.31	66.66	
13.89	3.58	1.69	5.27	47.93	24.00	71.93		

NEW MINES	14.59	1.30		1.30	1.30		1.30	17.20
	16.77	2.61	4.38	6.99	3.91	4.38	8.29	13.46
	17.20	1.30	8.77	10.07	5.21	13.15	18.36	11.24
	18.48	2.60		2.60	7.81	13.15	20.96	24.18
	19.17	1.30	2.19	3.49	9.11	15.34	24.45	15.42
	20.15		13.15	13.15	9.11	28.49	37.60	10.63
	20.89		29.59	29.59	9.11	58.08	67.19	13.59
	21.51		49.53	49.53	9.11	107.61	116.73	13.27
	22.11		35.51	35.51	9.11	143.12	152.23	16.04
	22.58		53.70	53.70	9.11	196.82	205.93	14.47
	23.00		53.70	53.70	9.11	250.52	259.63	14.83
	23.54		69.48	69.48	9.11	320.00	329.11	16.41
	24.17	2.87	56.98	59.85	11.98	376.97	388.96	16.18
	24.72	2.83	57.45	60.29	14.82	434.43	449.25	18.91
	25.31	3.11	37.27	40.38	17.93	471.70	489.63	19.20
	26.01		82.63	82.63	17.93	554.33	572.26	17.05
	26.64	7.91	26.30	34.11	25.74	580.63	606.37	23.13
	27.22		20.38	20.38	25.74	601.01	626.75	21.16
	27.76	7.79	27.63	35.42	33.53	628.64	662.18	23.36
	28.20	3.13	10.30	13.42	36.66	638.94	675.60	26.79
	28.78	1.30	2.19	3.49	37.96	641.13	679.09	31.59
	29.15	2.60	7.67	10.27	40.56	648.81	689.37	30.63
	29.84		9.42	9.42	40.56	658.23	698.79	27.23
	30.84		10.08	10.08	40.56	668.31	708.87	29.57
	31.10		13.81	13.81	40.56	682.12	722.68	26.81
	32.27	.26	5.48	5.74	40.42	687.60	729.42	32.86
	32.94	1.30	7.24	8.53	42.12	694.84	736.96	30.57
	33.76	1.30	8.99	10.29	43.41	703.83	747.24	37.07
	33.99		3.95	3.95	43.41	707.77	751.19	32.04
	35.13		3.95	3.95	43.41	711.72	755.13	38.06
	35.75		7.45	7.45	43.41	719.17	762.59	32.93
	36.88		8.55	8.55	43.41	727.72	771.13	39.00
	38.63		6.58	6.58	43.41	734.29	777.71	39.94
	47.42	1.30		1.30	44.72	734.29	779.01	80.85
	49.49	4.16		4.16	48.88	734.29	783.17	80.85

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, MCA, TPW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 4 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.57	.40		.40	.40		.40	
	9.39	.03		.03	.43		.43	
NEW MINES	24.35	.26		.26	.26		.26	40.13
	24.90		.22	.22	.26	.22	.48	12.07
	26.81		1.10	1.10	.26	1.38	1.58	21.22
	28.26	.26	.88	1.14	.52	2.19	2.71	29.72
	29.86		2.63	2.63	.52	4.82	5.34	26.79
	31.13		.88	.88	.52	5.70	6.22	31.14
	31.91	.26	1.53	1.79	.73	7.23	8.01	30.35
	32.72		2.41	2.41	.73	9.64	10.42	33.42
	34.39		2.19	2.19	.73	11.84	12.62	34.47
	35.70		1.10	1.10	.73	12.93	13.71	39.00
	37.48		1.10	1.10	.73	14.03	14.81	39.94
	47.19	1.04		1.04	1.92	14.03	15.85	80.85

PIES CODE: CS

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 5 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: METALLURGICAL COAL (27.0 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	11.27	2.37	4.92	7.29	2.37	4.92	7.29	
	11.83	.27	.56	.83	2.64	5.48	8.12	
	12.60	2.60	7.25	9.85	5.24	12.73	17.97	
	13.25	.64	1.84	2.48	5.88	14.57	20.45	
	13.84	.64	1.84	2.48	6.52	16.41	22.93	
NEW MINES	25.25		.41	.41		.41	.41	10.91
	26.54		.82	.82		1.23	1.23	11.56
	27.15		1.03	1.03		2.26	2.26	17.13
	27.90		1.85	1.85		4.11	4.11	15.78
	28.41		2.05	2.05		6.16	6.16	19.09
	29.30		3.08	3.08		9.25	9.25	14.23
	29.90	.22	5.34	5.56	.22	14.59	14.81	18.65
	30.53		3.70	3.70	.22	18.29	18.51	20.62
	31.49		8.01	8.01	.22	26.30	26.52	18.36
	32.08		5.34	5.34	.22	31.65	31.86	19.33
	33.01		8.22	8.22	.22	39.86	40.08	21.04
	33.66		1.85	1.85	.22	41.71	41.93	21.50
	34.03	.44	2.05	2.49	.66	43.77	44.42	19.66
	34.60		2.67	2.67	.66	46.44	47.10	27.38
	35.17		4.52	4.52	.66	50.96	51.62	25.47
	35.83	1.97	3.08	5.05	2.63	54.04	56.67	25.59
	36.36		4.52	4.52	2.63	58.56	61.19	30.99
	37.15		7.60	7.60	2.63	66.17	68.79	21.91
	37.97		6.58	6.58	2.63	72.74	75.37	33.65
	38.54	2.19	3.08	5.27	4.82	75.82	80.64	30.66
	39.42	.44	2.67	3.11	5.26	78.49	83.75	36.51
	40.01		9.04	9.04	5.26	87.53	92.79	23.46
	40.94	2.41	1.23	3.64	7.67	88.77	96.44	41.32
	41.29		8.84	8.84	7.67	97.60	105.27	35.56
	41.76		1.03	1.03	7.67	98.63	106.30	25.82
	43.27		3.70	3.70	7.67	102.33	110.00	42.60
	44.32		5.55	5.55	7.67	107.87	115.55	36.05
	45.14		6.16	6.16	7.67	114.04	121.71	18.81
	45.88		.62	.62	7.67	114.66	122.33	26.74
	47.01	2.41	1.44	3.85	10.08	116.10	126.18	52.86
	47.39		1.03	1.03	10.08	117.12	127.20	40.60
	48.40		3.08	3.08	10.08	120.20	130.28	34.17
	50.65		2.05	2.05	10.08	122.26	132.34	27.65
	51.33		3.29	3.29	10.08	125.55	135.63	40.73
	54.80	3.29	3.70	6.99	13.37	129.24	142.61	59.84

PIES CODE: CH

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, HCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.
OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 6 : PIES COAL SUPPLY REGION - NORTHERN APPALACHIA

COAL TYPE: HIGH BTU (23.8 MBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	10.52	.32		.32	.32		.32	
	11.05	.04		.04	.36		.36	
	11.57	.04		.04	.39		.39	
NEW MINES	22.87		.22	.22		.22	.22	10.84
	24.27		.22	.22		.44	.44	11.45
	25.59	.26	.22	.48	.26	.66	.92	27.30
	27.66		.22	.22	.26	.88	1.14	12.68
	29.32	.52		.52	.78	.86	1.66	43.27
	31.08		.22	.22	.78	1.10	1.88	25.07
	33.46	.52		.52	1.30	1.10	2.40	56.41
	33.99		.22	.22	1.30	1.31	2.62	32.04
	35.85		.22	.22	1.30	1.53	2.83	32.93
	37.09		.22	.22	1.30	1.75	3.05	39.00
	49.08	1.56		1.56	2.86	1.75	4.62	80.85

PIES CODE: CI

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROVE, NCA, FRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 7 : PIES COAL SUPPLY REGION - CENTRAL APPALACHIA

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)

HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.32	2.33	2.15	4.48	2.33	2.15	4.48	
	10.18	1.99	7.10	9.17	4.32	9.33	13.65	
	10.96	.79	4.17	4.97	5.12	13.51	18.62	
	14.66		19.02	19.02	5.12	32.52	37.64	
	15.39		2.00	2.00	5.12	34.53	39.64	
	16.13		2.00	2.00	5.12	36.53	41.65	
NEW MINES	14.51	1.30		1.30	1.30		1.30	13.71
	24.16	.26		.26	1.56		1.56	31.98
	24.74	.26		.26	1.82		1.82	31.98
	25.59		.22	.22	1.82	.22	2.04	11.45
	27.41		.88	.88	1.82	1.10	2.92	12.07
	28.21	.52		.52	2.34	1.10	3.44	40.13
	28.90	.52	.22	.74	2.86	1.31	4.18	31.81
	29.57		.88	.88	2.86	2.19	5.05	12.68
	30.89		.66	.66	2.86	2.85	5.71	16.52
	32.49	.52	.66	1.18	3.38	3.51	6.89	35.32
	33.37	.52	.22	.74	3.90	3.73	7.63	43.19
	35.02		1.10	1.10	3.90	4.82	8.73	29.59
	36.61		.44	.44	3.90	5.26	9.16	28.98
	37.26	.52	.44	.96	4.43	5.70	10.12	45.63
	38.17	.52	.44	.96	4.95	6.14	11.08	49.45
	39.19		.22	.22	4.95	6.35	11.30	32.93
	40.32		.44	.44	4.95	6.79	11.74	39.94
	42.14		.22	.22	4.95	7.01	11.96	39.94
	100.00	1.56		1.56	6.51	7.01	13.52	80.85

PIES CODE: CH

DATA SOURCES : ICN INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 8 : PIES COAL SUPPLY REGION - CENTRAL APPALACHIA

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)

MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.32	2.86	1.62	4.48	2.86	1.62	4.48	
	10.20	19.26	36.41	55.67	22.12	38.02	60.15	
	10.97	13.42	26.52	39.94	35.54	64.55	100.09	
	11.60	2.49	15.67	18.15	38.03	80.21	118.24	
	12.18	1.10	3.79	4.89	39.13	84.01	123.13	
	12.98	1.20	11.18	12.38	40.33	95.18	135.51	
	13.67	.35	4.65	5.00	40.68	99.83	140.51	
	14.56	.35	17.29	17.64	41.03	117.12	158.15	
	15.39		1.33	1.33	41.03	118.45	159.48	
	16.13		1.33	1.33	41.03	119.78	160.81	
	17.80	.10	1.21	1.31	41.13	120.99	162.12	
NEW MINES	14.51	1.30		1.30	1.30		1.30	13.71
	20.80		2.19	2.19	1.30	2.19	3.49	10.23
	22.10		2.63	2.63	1.30	4.82	6.12	10.48
	23.00		2.19	2.19	1.30	7.01	8.31	13.32
	23.53		3.29	3.29	1.30	10.30	11.60	12.75
	24.10	1.56	1.09	2.66	2.86	11.40	14.26	25.20
	24.63	1.04	5.48	6.52	3.91	16.87	20.78	15.75
	25.14		2.19	2.19	3.91	19.06	22.97	11.45
	26.09		5.48	5.48	3.91	24.54	28.45	13.57
	26.90		10.30	10.30	3.91	34.85	38.75	13.39
	27.45		4.16	4.16	3.91	39.01	42.92	17.27
	28.33	1.82	2.19	4.01	5.73	41.20	46.93	28.14
	28.86	1.30	10.52	11.82	7.03	51.72	58.75	17.19
	29.18		2.41	2.41	7.03	54.13	61.16	19.48
	29.93		2.63	2.63	7.03	56.76	63.79	26.15
	30.26		1.97	1.97	7.03	58.74	65.77	24.21
	31.18	1.30	4.82	6.12	8.33	63.56	71.89	21.12
	32.01	1.30	5.92	7.22	9.63	69.48	79.11	26.46
	32.72	1.82		1.82	11.46	69.48	80.93	46.09
	33.23	1.30	2.19	3.49	12.76	71.67	84.42	38.22
	34.16		6.14	6.14	12.76	77.80	90.56	25.53
	34.76		4.38	4.38	12.76	82.19	94.94	34.10
	36.36		2.19	2.19	12.76	84.38	97.14	28.35
	36.99	.52	5.04	5.56	13.28	89.42	102.70	31.70
	37.87	.26	3.73	3.99	13.54	93.14	106.68	39.47
	38.21	1.30		1.30	14.84	93.14	107.98	54.63
	39.19		2.63	2.63	14.94	95.77	110.61	32.93
	39.89		3.73	3.73	14.84	99.50	114.34	39.22
	42.14		1.75	1.75	14.84	101.25	116.09	39.94
	100.00	3.64		3.64	18.48	101.25	119.74	75.38

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.
OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 9 : PIES COAL SUPPLY REGION - CENTRAL APPALACHIA

COAL TYPE: METALLURGICAL COAL (27.0 MBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.74	2.16	.95	3.12	2.16	.95	3.12	
	10.55	.77	.31	1.07	1.13	1.26	4.39	
	11.03	20.78		20.78	23.91	1.26	25.17	
	11.60	25.51	49.97	75.49	49.42	51.23	100.65	
	12.18	8.67	5.27	13.93	58.09	56.50	114.59	
	13.02	6.44	6.09	12.53	64.53	62.59	127.11	
	13.67	3.08	2.92	6.00	67.61	65.51	133.12	
	14.32	3.08	2.92	6.00	70.69	68.43	139.12	
	17.80	1.99	5.26	7.25	72.67	73.69	146.37	
NEW MINES	17.98	1.10		1.10	1.10		1.10	14.62
	18.92	5.48		5.48	6.58		6.58	18.62
	20.34	1.10		1.10	7.67		7.67	18.34
	21.22	7.67		7.67	15.34		15.34	18.34
	21.62	1.10		1.10	16.44		16.44	18.34
	22.91	1.10	2.05	3.15	17.53	2.05	19.59	14.79
	23.87	7.67	2.05	9.73	25.21	4.11	29.31	19.85
	24.33	1.09	11.31	12.40	26.30	15.41	41.71	12.61
	25.18		8.22	8.22	26.30	23.63	49.93	14.11
	25.78	1.10	6.37	7.47	27.40	30.00	57.40	14.46
	26.34	1.09	10.28	11.37	28.49	40.28	68.77	15.76
	26.84	6.57	5.14	11.71	35.06	45.42	80.48	20.31
	27.51	1.10	13.15	14.25	36.16	58.57	94.73	14.64
	28.14		12.33	12.33	36.16	70.90	107.05	15.00
	28.42		16.03	16.03	36.16	86.93	123.08	13.89
	29.16	.43	18.30	18.73	36.59	105.22	141.81	16.17
	29.76	1.31	10.28	11.59	37.90	115.50	153.40	19.60
	30.21	1.53	16.03	17.56	39.42	131.53	170.95	15.91
	30.77		21.99	21.99	39.42	153.52	192.94	16.01
	31.33	4.39	25.06	29.45	41.81	178.58	222.40	17.43
	31.97	1.76	8.22	9.97	45.57	186.80	232.37	21.52
	32.51	6.37	14.78	21.15	51.93	201.59	253.52	22.42
	33.01	2.85	9.04	11.89	54.79	210.62	265.41	20.91
	33.55		18.70	18.70	54.79	229.32	284.11	16.76
	34.29	.65	6.17	6.82	55.44	235.49	290.93	22.01
	35.02	1.97	12.33	14.30	57.42	247.82	305.23	19.32
	35.85		13.97	13.97	57.42	261.79	319.20	16.06
	36.42		9.66	9.66	57.42	271.45	328.86	21.60
	37.12	1.32	5.34	6.66	58.73	276.79	335.52	25.18
	37.45		1.03	1.03	58.73	277.81	336.55	23.14
	38.11	2.41	12.54	14.95	61.14	290.35	351.49	20.11
	38.55	2.19	4.93	7.12	63.33	295.28	358.61	27.15
	39.18	.66	10.68	11.34	63.99	305.97	369.96	24.56
	39.92	3.29	3.91	7.19	67.28	309.87	377.15	28.95
	47.96	26.56	79.69	106.25	93.84	389.56	483.40	40.59

PIES CODE: CM

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTHAU PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 10 : PIES COAL SUPPLY REGION - CENTRAL APPALACHIA

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	10.20	8.52		8.52	8.52		8.52	
	10.96	5.48		5.48	13.99		13.99	
	11.61	1.88	.74	2.62	15.88	.74	16.62	
	12.19	.90	.35	1.26	16.78	1.09	17.87	
	12.78	.90	.35	1.26	17.68	1.45	19.13	
	14.66	2.51		2.51	20.20	1.45	21.64	
	15.39	.26		.26	20.46	1.45	21.91	
	16.13	.26		.26	20.72	1.45	22.17	
NEW MINES	14.63	2.60		2.60	2.60		2.60	13.71
	16.63	2.60		2.60	5.21		5.21	17.20
	18.77	2.60		2.60	7.81		7.81	20.69
	21.03	2.60	1.09	3.70	10.41	1.09	11.51	20.04
	22.13		3.95	3.95	10.41	5.04	15.45	10.40
	23.00		2.19	2.19	10.41	7.23	17.64	13.32
	23.55		3.73	3.73	10.41	10.96	21.37	12.52
	24.16	1.56	1.09	2.66	11.97	12.05	24.03	26.19
	24.66	2.08	1.29	3.37	14.06	15.34	29.40	20.76
	25.16		2.63	2.63	14.06	17.97	32.03	11.45
	25.99		1.10	1.10	14.06	19.06	33.12	18.36
	26.91		6.58	6.58	14.06	25.64	39.70	14.45
	27.46		1.10	1.10	14.06	26.74	40.79	18.36
	28.36	2.08	1.97	4.05	16.14	28.71	44.85	11.01
	28.87	3.12	6.36	9.48	19.26	35.07	54.33	23.03
	29.97		2.19	2.19	19.26	37.26	56.52	27.29
	30.26		1.31	1.31	19.26	38.57	57.83	24.21
	31.17	5.20	2.41	7.62	24.46	40.99	65.45	30.22
	31.91	1.90	2.63	4.53	24.36	43.62	71.99	30.74
	32.87	2.08	1.97	4.05	30.45	45.59	76.04	41.03
	33.39	3.12		3.12	33.57	45.59	79.16	43.27
	34.14		3.29	3.29	33.57	48.88	82.45	27.82
	34.79		4.16	4.16	33.57	53.04	86.61	33.45
	36.06		1.97	1.97	33.57	55.02	88.59	38.06
	36.73		2.45	2.45	33.57	57.47	91.44	30.76
	37.23		1.53	1.53	33.57	59.40	92.97	34.67
	38.17	3.12	.44	3.56	36.69	59.84	96.53	54.16
	39.19		.88	.88	36.69	60.72	97.41	32.93
	39.80		1.75	1.75	36.69	62.47	99.16	39.24
	42.14		.66	.66	36.69	63.13	99.82	39.94
	100.00	9.89		9.89	46.58	63.13	109.71	80.85

PIES CODE: CI

DATA SOURCES : ICE INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRV, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.
OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 11 : PIES COAL SUPPLY REGION - SOUTHERN APPALACHIA

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)

MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	12.74	17.51	10.55	28.06	17.51	10.55	28.06	
	13.74	4.92	2.63	7.55	22.43	13.18	35.61	
	14.02	1.05	.63	1.68	23.48	13.81	37.29	
	14.54	.23	.12	.35	23.71	13.93	37.64	
	15.21	.21	.12	.35	23.95	14.05	38.00	
NEW MINES	28.33		4.38	4.38		4.38	4.38	12.68
	31.55		1.97	1.97		6.36	6.36	25.93
	36.32		1.97	1.97		8.33	8.33	32.93
	39.30		1.31	1.31		9.64	9.64	39.94

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, MCA, TRM, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 12 : PIES COAL SUPPLY REGION - SOUTHERN APPALACHIA

COAL TYPE: METALLURGICAL COAL (27.0 MBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	13.85	2.78		2.78	2.78		2.78	
	14.54	.17		.17	2.94		2.94	
	15.23	.17		.17	3.11		3.11	
NEW MINES	28.33		1.97	1.97		1.97	1.97	12.68
	33.55		1.75	1.75		3.73	3.73	25.93
	36.32		1.75	1.75		5.48	5.48	32.93
	39.30		1.31	1.31		6.79	6.79	39.94
	46.52		.21	.21		7.00	7.00	43.52
	52.09		.21	.21		7.21	7.21	47.65
	55.00		.21	.21		7.41	7.41	51.13

PIES CODE: CM

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 13 : PIES COAL SUPPLY REGION - MIDWEST

COAL TYPE: HIGH BTU (23.0 MMBTU/TON)

HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.45	10.41	.18	10.59	10.41	.18	10.59	
	8.18	.12	.01	.13	10.53	.19	10.72	
	8.71	5.39	4.45	9.84	15.92	4.63	20.56	
	9.58	.03	.03	.06	15.95	4.66	20.61	
NEW MINES	12.31	7.81		7.81	7.81		7.81	14.33
	13.15	5.21		5.21	13.01		13.01	14.33
	13.93	7.81		7.81	20.82		20.82	17.23
	14.77	6.51		6.51	27.33		27.33	17.23
	15.56	6.51		6.51	33.84		33.84	20.26
	16.39	6.50	4.39	10.89	40.34	4.39	44.73	15.79
	16.81	1.30		1.30	41.64	4.39	46.03	20.69
	17.64	1.30	13.15	14.45	42.94	17.54	60.48	10.92
	17.96	1.30		1.30	44.24	17.54	61.78	24.18
	18.84	1.30		1.30	45.54	17.54	63.08	24.18
	20.01	5.21	19.72	24.93	50.75	37.26	88.01	17.33
	20.59	10.41	10.96	21.37	61.16	48.22	109.38	21.39
	21.21		17.53	17.53	61.16	65.76	126.92	14.85
	21.71	7.80	28.50	36.30	68.96	94.25	163.22	13.57
	22.32	2.60	30.69	33.29	71.56	124.95	196.51	17.32
	22.81	5.21	21.92	27.12	76.77	146.86	223.63	18.82
	23.38	1.05	35.06	36.11	77.82	181.92	259.74	17.58
	23.84		30.68	30.68	77.82	212.61	290.42	17.38
	24.52	1.83	19.72	21.55	79.65	232.33	311.97	20.16
	25.06		29.37	29.37	79.65	261.69	341.34	19.39
	25.71	9.10	13.16	22.26	88.75	274.85	363.60	25.07
	26.26		20.38	20.38	88.75	295.23	383.99	20.16
	26.88	6.51	13.58	20.10	95.26	308.82	404.08	25.33
	27.54	1.04	11.62	12.66	96.30	320.44	416.74	24.08
	28.05		7.45	7.45	96.30	327.89	424.19	29.34
	29.18		10.52	10.52	96.30	338.41	434.71	27.98
	30.72		8.11	8.11	96.30	346.52	442.82	32.89
	31.19	.52		.52	96.82	346.52	443.34	47.51
	45.55	.78		.78	97.60	346.52	444.12	68.08

PIES CODE: CH

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
 MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
 ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 14 : PIES COAL SUPPLY REGION - MIDWEST

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.08	75.99	40.56	116.54	75.99	40.56	116.54	
	7.85	40.03	46.49	87.02	116.02	87.55	203.57	
	8.45	.44	.53	.97	116.46	88.08	204.53	
NEW MINES	11.52	5.21		5.21	5.21		5.21	13.61
	12.56	20.82		20.82	26.03		26.03	14.84
	14.09	27.33		27.33	53.36		53.36	17.59
	15.72	22.12		22.12	75.48		75.48	20.31
	16.62		131.51	131.51	75.48	131.51	206.99	9.57
	18.17	14.32		14.32	89.79		89.79	25.16
	20.02	26.04	113.96	140.00	115.83	245.47	361.30	16.98
	20.49		52.60	52.60	115.83	298.07	413.90	15.63
	21.21		116.16	116.16	115.83	414.23	530.07	15.35
	21.78		99.73	99.73	115.83	513.96	629.79	16.40
	22.31	31.25	131.49	162.74	147.08	545.45	792.53	19.38
	22.95		28.49	28.49	147.08	573.95	821.03	17.47
	23.52	2.62	64.64	67.26	149.70	738.58	888.29	18.64
	24.09		28.49	28.49	149.70	767.08	916.78	18.36
	24.70	1.02	62.49	63.51	150.72	829.57	980.29	19.95
	25.25		39.67	39.67	150.72	869.24	1019.96	21.42
	25.87	3.91	15.34	19.25	154.63	884.58	1039.20	21.33
	26.41		6.36	6.36	154.63	890.93	1045.56	21.70
	27.03	2.60	3.29	5.89	157.23	894.22	1051.45	25.00
	27.82		7.45	7.45	157.23	901.67	1058.90	27.23
	28.94	1.04	5.04	6.08	158.27	906.71	1064.98	27.74
	29.18		3.29	3.29	158.27	910.00	1068.27	30.24
	30.69		11.62	11.62	158.27	921.52	1079.89	31.27
	32.61	1.04		1.04	159.31	921.52	1080.93	47.51
	47.37	1.30		1.30	160.61	921.52	1082.23	68.08

PIES CODE: CW

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 15 : PIES COAL SUPPLY REGION - MIDWEST

COAL TYPE: HIGH BTU (23.9 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.44	.37		.37	.17		.37	
	8.18	.00		.00	.37		.37	
	8.71	2.51	3.75	6.26	2.88	3.75	6.63	
	9.58	.01	.02	.03	2.90	3.77	6.67	
NEW MINES	14.14	1.30		1.30	1.30		1.30	17.20
	16.36	1.30	4.38	5.68	2.60	4.38	6.99	11.80
	17.96	1.30		1.30	3.90	4.38	8.29	24.18
	20.09		32.88	32.88	3.90	37.26	41.16	14.61
	20.58		19.73	19.73	3.90	56.99	60.89	15.54
	21.35		15.34	15.34	3.90	72.33	76.23	15.20
	21.90	2.60	17.54	20.14	6.50	89.87	96.37	18.03
	22.41		21.92	21.92	6.50	111.79	118.29	17.18
	22.98	.52	8.77	9.29	7.02	120.55	127.58	18.74
	23.53	.27	17.53	17.79	7.29	138.08	145.37	18.22
	24.11		8.77	8.77	7.29	146.85	154.14	18.36
	24.72	.26	12.93	13.19	7.55	159.78	167.33	19.76
	25.30	1.31	17.09	18.40	8.86	176.87	185.73	22.78
	25.97	1.30	4.16	5.47	10.16	191.03	191.19	24.84
	26.46		7.89	7.89	10.16	188.92	199.08	23.36
	27.39	.78	.88	1.66	10.94	189.80	200.74	35.54
	27.95		19.07	19.07	10.94	208.87	219.81	27.22
	28.84	.26	.66	.92	11.20	209.52	220.73	29.49
	29.24		15.56	15.56	11.20	225.09	236.29	27.84
	30.63		9.64	9.64	11.20	234.73	245.93	31.59
	31.08	.78	10.08	10.86	11.98	244.81	256.79	37.64
	32.17		13.81	13.81	11.98	258.62	270.60	35.10
	32.61	.26		.26	12.24	258.62	270.86	47.51
	33.56		6.79	6.79	12.24	265.41	277.66	37.73
	34.99		3.95	3.95	12.24	269.36	281.60	39.00
	36.40		.44	.44	12.24	269.90	282.04	39.94
	45.55	.52		.52	12.76	269.80	282.56	80.85
	47.37	1.04		1.04	13.81	269.90	283.60	68.08

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 16 : PIES COAL SUPPLY REGION - MIDWEST

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.02	4.54		4.54	4.54		4.54	
	7.85	.77		.77	5.31		5.31	
	8.45	.01		.01	5.32		5.32	
NEW MINES	13.94	1.30		1.30	1.30		1.30	17.20
	15.78	1.30		1.30	2.60		2.60	20.69
	17.75	1.30		1.30	3.90		3.90	24.19
	20.16		6.58	6.58	3.90	6.58	10.48	14.97
	21.27		4.38	4.38	3.90	10.96	14.86	15.20
	21.81	2.60	5.48	8.08	6.51	16.44	22.94	20.53
	22.34		7.67	7.67	6.51	24.11	30.62	17.40
	22.90		2.19	2.19	6.51	26.30	32.01	17.47
	23.46	1.30	4.38	5.68	7.81	30.68	38.49	22.98
	24.04		2.19	2.19	7.81	32.88	40.68	18.36
	24.65	.78	4.34	5.16	8.59	37.26	45.85	22.02
	25.17		6.58	6.58	9.59	43.84	52.42	21.96
	25.85	2.60	3.29	5.89	11.19	47.12	58.31	26.10
	26.45		5.04	5.04	11.19	52.16	63.36	22.55
	27.05	3.90	1.09	5.00	15.10	53.26	68.36	35.35
	27.82		6.79	6.79	15.10	60.05	75.15	26.28
	28.28	.78	1.53	2.31	15.88	61.59	77.46	35.73
	29.14		8.55	8.55	15.88	70.14	86.01	26.99
	29.73		.66	.66	15.88	70.79	86.67	29.34
	30.69		9.64	9.64	15.88	80.44	96.31	30.70
	31.06	1.30	2.19	3.49	17.18	82.63	99.81	42.60
	31.99		7.67	7.67	17.18	90.30	107.48	33.34
	32.61	.78	1.31	2.10	17.96	91.61	109.57	42.14
	33.55		4.60	4.60	17.96	96.22	114.18	35.05
	34.12		.66	.66	17.96	96.87	114.83	37.12
	34.96		3.29	3.29	17.96	100.16	118.12	39.00
	35.50		.66	.66	17.96	100.82	119.78	38.06
	36.52		2.19	2.19	17.96	103.01	120.97	39.94
	37.03		.44	.44	17.96	103.45	121.41	39.00
	45.34	2.34		2.34	20.30	103.45	123.75	80.85
	47.37	.26		.26	20.56	103.45	124.01	80.85

PIES CODE: CS

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRN, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 17 : PIFS COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
HIGH SULFUR (GREATER THAN 1.68 LBS/MMPTH)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.77	2.22		2.22	2.22		2.22	
	9.43	4.78		4.78	7.00		7.00	
	10.16	.22		.22	7.22		7.22	
NEW MINES	24.30		1.10	1.10		1.10	1.10	17.77
	24.96		1.75	1.75		2.85	2.85	20.47
	25.44		1.10	1.10		3.94	3.94	20.75
	26.22	3.90	1.53	5.44	3.90	5.48	9.38	30.82
	26.91	1.30	1.10	2.40	5.21	6.57	11.78	25.76
	27.17		1.31	1.31	5.21	7.89	13.10	24.21
	27.87	1.56	.44	2.00	6.77	8.33	15.10	44.12
	28.66	.78	1.53	2.31	7.55	9.86	17.41	30.32
	29.16		.44	.44	7.55	10.30	17.85	30.24
	30.24		3.73	3.73	7.55	14.03	21.57	27.77
	30.94		.44	.44	7.55	14.46	22.01	36.19
	31.65	2.60	2.19	4.79	10.15	16.66	26.81	45.27
	32.29	1.30	.44	1.74	11.45	17.09	28.55	44.89
	33.17		3.07	3.07	11.45	20.16	31.62	35.13
	34.62		2.19	2.19	11.45	22.35	33.81	39.00
	36.13		1.75	1.75	11.45	24.11	35.56	39.94
	45.71	4.68		4.68	16.14	24.11	40.25	80.85
	46.34	3.64		3.64	19.78	24.11	43.89	68.08

PIFS CODE: CH

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, EDW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 18 : PIES COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	6.30	12.15		12.15	12.15		12.15	
	6.90	1.50		1.50	13.65		13.65	
NEW MINES	16.80		2.74	2.74		2.74	2.74	13.41
	17.67		9.59	9.59		12.33	12.33	14.25
	18.42	1.30	6.85	8.15	1.30	19.13	20.48	16.63
	19.13		5.48	5.48	1.30	24.65	25.96	16.00
	19.77		4.66	4.66	1.30	29.31	30.62	16.82
	20.70		4.11	4.11	1.30	33.42	34.73	18.70
	22.00		10.41	10.41	1.30	43.83	45.14	19.81
	23.15		9.59	9.59	1.30	53.42	54.73	21.10
	23.69		2.19	2.19	1.30	55.61	56.92	19.36
	24.31		14.79	14.79	1.30	70.41	71.71	22.54
	24.88		7.01	7.01	1.30	77.42	78.73	19.46
	25.50		18.08	18.08	1.30	95.50	96.81	23.31
	26.35	5.20	9.05	14.25	6.50	104.55	111.05	29.06
	26.74		4.38	4.38	6.50	108.93	115.44	21.69
	27.27		2.63	2.63	6.50	111.55	118.07	24.21
	27.84	2.08	3.29	5.37	9.59	114.85	123.44	38.29
	28.65		7.89	7.89	9.59	122.74	131.33	25.07
	30.16		8.11	8.11	9.59	130.85	139.44	27.48
	31.56	2.60	9.21	11.81	11.17	140.05	151.25	37.41
	32.34	.26		.26	11.45	140.05	151.51	47.51
	33.06		9.86	9.86	11.45	149.92	161.37	34.19
	34.53		9.21	9.21	11.45	159.13	170.57	39.00
	36.04		7.45	7.45	11.45	166.53	178.03	39.94
	45.71	5.77		6.77	18.21	166.53	184.79	80.85
	46.34	.79		.78	19.99	166.53	185.57	68.04

PIFS CODE: CW

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 19 : PIES COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
MEDIUM SULPHUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	10.36	.22		.22	.22		.22	
	10.87	.01		.01	.23		.23	
	11.39	.01		.01	.24		.24	
	15.34	1.08		1.08	1.33		1.33	
	16.11	.36		.36	1.69		1.69	
	16.87	.36		.36	2.05		2.05	
NEW MINES	25.11		.22	.22		.22	.22	22.50
	26.29		.22	.22		.44	.44	23.36
	27.77		.44	.44		.88	.88	26.79
	28.47	1.56		1.56	1.56	.88	2.44	31.09
	29.92		1.10	1.10	1.56	1.97	3.53	26.10
	29.81	.78		.78	2.34	1.97	4.31	40.65
	30.58		1.53	1.53	2.34	3.51	5.85	20.14
	32.02	.52	1.31	1.84	2.86	4.92	7.68	37.03
	33.63	1.82	1.53	3.36	4.69	6.35	11.04	41.18
	34.34		1.10	1.10	4.69	7.45	12.14	39.00
	36.38		1.31	1.31	4.69	8.77	13.45	39.94
	40.49	.22		.22	4.91	8.77	13.67	56.41
	46.14	1.56		1.56	6.47	8.77	15.23	68.08
	49.07	4.42		4.42	10.89	8.77	19.66	68.08

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 20 : PIES COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: SUB-BITUMINOUS (19.1 MBRTU/TON)
MEDIUM SULFUR (GREATER THAN 0.67 LBS/MBRTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	6.37	1.74		1.74	1.74		1.74	
	6.93	.35		.35	2.09		2.09	
NEW MINES	16.80		2.74	2.74		2.74	2.74	13.41
	17.66		6.95	6.95		9.59	9.59	14.31
	18.40		4.11	4.11		13.70	13.70	15.31
	19.13		5.49	5.49		19.19	19.19	16.00
	19.76		3.84	3.84		23.01	23.01	16.42
	20.69		3.56	3.56		26.58	26.58	18.59
	22.02		4.93	4.93		31.51	31.51	21.43
	23.16		4.66	4.66		36.16	36.16	23.68
	24.34		4.38	4.38		40.55	40.55	27.15
	25.52		5.21	5.21		45.75	45.75	29.94
	26.66		2.74	2.74		48.49	48.49	31.20
	27.90		1.92	1.92		50.41	50.41	31.95

PIES CODE: CV

DATA SOURCES : ICE INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 21 : PIES COAL SUPPLY REGION - CENTRAL WEST

COAL TYPE: METALLURGICAL COAL (27.0 MBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	10.36	.78		.78	.78		.78	
	10.87	.04		.04	.82		.82	
	11.39	.04		.04	.87		.87	
NEW MINES	32.34	.26		.26	.26		.26	47.51
	32.99		.41	.41	.26	.41	.67	26.74
	34.66		.62	.62	.26	1.03	1.29	27.65
	36.00	.22	.62	.84	.48	1.64	2.12	37.87
	37.69		.82	.82	.48	2.47	2.94	35.13
	39.24		.62	.62	.48	3.08	3.56	41.60
	40.77	.44	.82	1.26	.92	3.90	4.82	47.41
	57.11	1.53		1.53	2.45	3.90	6.36	83.93
	58.74	1.31		1.31	3.77	3.90	7.67	80.85

PIES CODE: CM

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 22 : PIES COAL SUPPLY REGION - GULF

COAL TYPE: LIGNITE (13.0 MBTU/TON)

MEDIUM SUEUR (GREATER THAN 0.67 LBS/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	2.47	27.42		27.42	27.42		27.42	
NEW MINES	6.09	24.66		24.66	24.66		24.66	4.18
	6.93	43.84		43.84	68.49		68.49	5.72
	7.41	35.62		35.62	104.11		104.11	6.39
	8.12	60.27		60.27	164.38		164.38	7.58
	8.63	32.88		32.88	197.26		197.26	8.68
	9.43	32.88		32.88	230.14		230.14	8.99
	9.92	10.96		10.96	241.10		241.10	10.89
	10.91	10.96		10.96	252.05		252.05	11.21
	11.71	1.64		1.64	253.70		253.70	12.56
	12.64	2.74		2.74	256.44		256.44	13.76
	15.05	1.37		1.37	257.81		257.81	19.07
	18.46	1.37		1.37	259.18		259.18	25.59
	21.93	.82		.82	260.00		260.00	32.10
	23.41		.27	.27	260.00	.27	260.27	20.05
	25.61		.27	.27	260.00	.55	260.55	25.61
	27.96		.27	.27	260.00	.82	260.82	31.20

PIES CODE: CU

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS, MORGANTOWN PROCESS EVALUATION GROUP, MCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 23 : PIES COAL SUPPLY REGION - EASTERN NORTHERN GREAT PLAINS

COAL TYPE: LIGNITE (13.2 MMBTU/TON)

MEDIUM SULFUR (GREATER THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	2.47	20.87		20.87	20.87		20.87	
	3.10	1.36		1.36	22.23		22.23	
NEW MINES	7.62	427.40		427.40	427.40		427.40	6.31
	8.43	328.77		328.77	756.16		756.16	7.18
	9.16	246.57		246.57	1002.74		1002.74	9.30
	9.76	143.84		143.84	1146.57		1146.57	9.98
	10.65	13.70		13.70	1160.27		1160.27	8.77
	11.12	61.64		61.64	1221.92		1221.92	10.35
	11.77	6.85		6.85	1228.77		1228.77	11.16
	12.34	10.96		10.96	1239.72		1239.72	10.89
	13.23	16.44		16.44	1256.16		1256.16	11.21
	13.76	2.74		2.74	1258.90		1258.90	12.56
	15.23	13.70		13.70	1272.60		1272.60	13.77
	17.46	5.48		5.48	1278.08		1278.08	16.55
	17.99	3.56		3.56	1281.64		1281.64	19.07
	21.28		5.48	5.48	1281.64	5.48	1287.12	14.81
	22.16	3.56	2.74	6.30	1285.20	8.22	1293.42	21.68
	25.32		5.21	5.21	1285.20	13.43	1298.63	20.05
	26.65	3.56		3.56	1288.76	13.43	1302.19	32.10
	27.59		6.85	6.85	1288.76	20.28	1309.04	25.63
	30.03		6.85	6.85	1288.76	27.12	1315.89	31.20
	31.13	1.37		1.37	1290.13	27.12	1317.26	38.62

PIES CODE: CH

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSTS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 24 : PLES COAL SUPPLY REGION - EASTERN NORTHERN GREAT PLAINS

COAL TYPE: LIGNITE (13.0 MMBTU/TON)

LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	2.47	1.21		1.21	1.21		1.21	
NEW MINES	7.60	19.18		19.18	19.18		19.18	6.33
	8.37	21.92		21.92	41.10		41.10	6.81
	9.16	47.91		17.81	58.90		58.90	8.05
	9.77	13.70		13.70	72.60		72.60	8.67
	11.22	8.22		8.22	80.82		80.82	9.89
	13.26	4.11		4.11	84.93		84.93	11.30
	13.76	.82		.82	85.75		85.75	12.56
	15.26	1.37		1.37	87.12		87.12	13.76
	17.46	1.37		1.37	88.49		88.49	16.55
	17.99	.55		.55	89.04		89.04	19.07
	22.28	.55		.55	89.59		89.59	25.59
	25.32		.27	.27	89.59	.27	89.86	20.05
	26.65	.55		.55	90.14	.27	90.41	32.10
	27.59		.55	.55	90.14	.32	90.96	25.63
	30.03		.55	.55	90.14	1.37	91.51	31.29
	31.13	.27		.27	90.41	1.37	91.78	38.62

PLES CODE: CY

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTHAU PROCESS EVALUATION GROUP, MCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 25 : PIES COAL SUPPLY REGION - WESTERN NORTHERN GREAT PLAINS

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	4.84	7.25		7.25	7.25		7.25	
NEW MINES	7.04	5.21		5.21	5.21		5.21	5.32
	7.59	5.21		5.21	10.41		10.41	5.61
	8.34	5.21		5.21	15.62		15.62	8.09
	8.98	7.81		7.81	23.42		23.42	8.52
	9.75	5.21		5.21	28.63		28.63	10.85
	10.48	7.81		7.81	36.44		36.44	11.42
	11.19	5.21		5.21	41.64		41.64	13.61
	12.07	8.59		8.59	50.23		50.23	14.46
	12.67	5.21		5.21	55.44		55.44	16.38
	13.66	7.81		7.81	63.25		63.25	17.24
	14.21	5.21		5.21	68.45		68.45	19.14
	15.37	7.81		7.81	76.26		76.26	20.15
	16.13	1.04		1.04	77.30		77.30	23.84
	18.19		13.15	13.15	77.30	13.15	90.45	9.61
	19.35		10.96	10.96	77.30	24.11	101.41	11.70
	19.79	11.45	5.49	16.94	88.75	29.60	118.34	22.88
	20.67		4.11	4.11	88.75	33.70	122.45	12.16
	21.21		4.11	4.11	88.75	37.81	126.56	13.25
	21.88	5.22	26.02	31.23	93.96	63.83	157.79	16.97
	22.39		13.15	13.15	93.96	76.98	170.94	15.57
	23.24		12.05	12.05	93.96	89.04	183.00	15.57
	23.86	1.03	12.06	13.10	95.00	101.10	196.10	18.38
	24.47		19.73	19.73	95.00	120.82	215.82	17.38
	24.98		5.48	5.48	95.00	126.30	221.30	17.47
	25.60		2.19	2.19	95.00	128.50	223.49	17.89
	26.23		1.10	1.10	95.00	129.59	224.59	18.36
	26.83		1.10	1.10	95.00	130.69	225.68	19.81
	27.62		6.58	6.58	95.00	137.26	232.26	23.15
	28.83		2.19	2.19	95.00	139.45	234.45	21.71
	30.49		4.66	4.66	95.00	144.11	239.11	25.60
	30.77		4.38	4.38	95.00	148.49	243.49	29.95
	31.84		3.07	3.07	95.00	151.56	246.56	27.12
	33.59		4.66	4.66	95.00	156.22	251.22	32.10
	34.98		3.07	3.07	95.00	159.29	254.29	33.55
	36.98		3.34	3.34	95.00	162.63	257.63	35.81

PIES CODE: C5

DATA SOURCES : JCF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, MCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 26 : PIES COAL SUPPLY REGION - WESTERN NORTHERN GREAT PLAINS

COAL TYPE: SUB-BITUMINOUS (18.3 MBTU/TON)
MEDIUM SUEPR (GREATER THAN 0.67 LBS/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	3.82	13.59		13.59	13.59		13.59	
NEW MINES	6.66	65.07		65.07	65.07		65.07	5.00
	7.04	62.47		62.47	127.53		127.53	5.12
	7.73	135.34		135.34	262.88		262.88	6.69
	8.35	97.60		97.60	360.48		360.48	7.96
	9.07	137.94		137.94	498.42		498.42	9.39
	9.85	123.63		123.63	622.05		622.05	11.00
	10.54	117.12		117.12	739.18		739.18	12.11
	11.23	109.31		109.31	848.49		848.49	13.81
	12.00	131.44		131.44	979.93		979.93	14.76
	12.67	113.48		113.48	1093.41		1093.41	16.49
	13.56	131.44		131.44	1224.85		1224.85	17.61
	14.21	88.49		88.49	1313.34		1313.34	19.14
	15.42	76.78		76.78	1390.12		1390.12	20.25
	16.13	4.42		4.42	1394.54		1394.54	23.84
	17.50	35.14		35.14	1429.68		1429.68	24.39
	18.09		17.53	17.53	1429.68	17.53	1447.22	9.39
	19.89	.78	.78	.78	1430.46	17.51	1448.00	31.98
	21.30	5.21	8.76	13.97	1435.67	26.30	1461.97	19.94
	22.40		6.58	6.58	1435.67	32.87	1468.54	15.50
	23.19		5.48	5.48	1435.67	38.35	1474.02	15.75
	23.74	.78	5.48	6.26	1436.46	43.81	1480.28	19.98
	24.49		4.66	4.66	1436.46	48.48	1484.94	17.95
	25.98		.55	.55	1436.46	49.03	1485.49	13.68
	26.60		1.75	1.75	1436.46	50.79	1487.24	22.50
	27.53	.78	5.21	5.99	1437.23	55.94	1493.23	25.80
	27.88		.22	.22	1437.23	56.21	1493.45	21.36
	28.92		1.64	1.64	1437.23	57.86	1495.09	21.43
	29.52		1.75	1.75	1437.23	59.61	1496.84	29.34
	30.61		6.25	6.25	1437.23	65.86	1503.09	27.77
	31.84	.78	1.64	2.42	1438.01	67.50	1505.51	36.46
	32.57		1.75	1.75	1438.01	69.25	1507.27	36.19
	33.70		4.88	4.88	1438.01	74.13	1512.14	33.93
	34.95		1.10	1.10	1438.01	75.23	1513.24	31.20
	35.62		.92	.92	1438.01	76.05	1514.06	31.95
	46.24	.52	.52	.52	1438.53	76.05	1514.58	40.85

PIES CODE: CV

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRR, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 27 : PIES COAL SUPPLY REGION - WESTERN NORTHERN GREAT PLAINS

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	4.84	20.35		20.35	20.35		20.35	
NEW MINES	7.59	2.60		2.60	2.60		2.60	5.61
	9.05	3.97		3.97	6.58		6.58	7.43
	10.34	3.90		3.90	10.48		10.48	11.02
	11.07	1.37		1.37	11.85		11.85	4.17
	11.98	3.90		3.90	15.75		15.75	14.12
	12.42	.78		.78	16.53		16.53	15.69
	13.12	1.37		1.37	17.90		17.90	10.97
	13.69	4.45		4.45	22.36		22.36	16.65
	15.51	5.27	5.48	10.75	27.63	5.48	33.11	12.87
	15.88	.26	10.96	11.22	27.88	16.45	44.33	9.24
	18.04	2.40	8.76	11.16	30.28	25.21	55.49	12.06
	18.37		4.38	4.38	30.28	29.59	59.88	10.05
	19.35		21.92	21.92	30.28	51.51	81.79	11.70
	19.83	.27	16.43	16.70	30.55	67.94	98.49	12.76
	20.66		16.44	16.44	30.55	84.38	114.93	12.43
	21.26		16.44	16.44	30.55	100.82	131.37	13.20
	21.82	2.60	27.95	30.55	33.15	128.77	161.92	15.30
	22.33	1.10	11.23	12.33	34.24	140.00	174.25	15.60
	23.04		20.27	20.27	34.24	160.28	194.52	14.60
	23.67	.26	13.42	13.68	34.50	173.70	208.21	16.08
	24.27		19.45	19.45	34.50	193.15	227.66	16.36
	24.79		16.71	16.71	34.50	209.86	244.37	17.47
	25.56	1.31	9.31	10.62	35.81	219.18	254.99	19.61
	26.07		8.77	8.77	35.81	227.94	263.75	18.56
	26.78	1.10	3.29	4.38	36.91	231.23	268.14	22.89
	27.43	.26	11.18	11.44	37.17	242.41	279.57	21.59
	28.77		2.63	2.63	37.17	245.04	282.20	23.36

PIES CODE: CZ

DATA SOURCES : ICF INC., KRYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 28 : PIES COAL SUPPLY REGION - WESTERN NORTHERN GREAT PLAINS

COAL TYPE: SUB-BITUMINOUS (14.3 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	3.52	81.48	1.16	82.63	81.48	1.16	82.63	
NEW MINES	7.14	237.81		237.81	237.81		237.81	4.04
	7.61	251.23		251.23	489.04		489.04	4.41
	8.41	463.90		463.90	952.94		952.94	5.49
	9.09	361.42		361.42	1314.86		1314.86	6.52
	9.92	499.52		499.52	1814.38		1814.38	7.60
	10.67	327.67		327.67	2142.05		2142.05	8.89
	11.39	328.42		328.42	2470.48		2470.48	9.20
	11.68	237.12		237.12	2707.60		2707.60	10.75
	46.24	.26		.26	2707.86		2707.86	80.85

PIES CODE: CX

DATA SOURCES : ICM INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRV. STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 29 : PIES COAL SUPPLY REGION - ROCKIES

COAL TYPE: HIGH BTU (23.9 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.83		.01	.01		.01	.01	
NEW MINES	11.53	6.51		6.51	6.51		6.51	10.70
	13.13	10.41		10.41	16.92		16.92	13.86
	14.85	7.81		7.81	24.73		24.73	17.20
	16.96	3.12		3.12	27.95		27.95	22.53
	20.73	4.43	2.19	6.62	32.28	2.19	34.47	26.12
	22.55		3.29	3.29	32.28	5.48	37.75	15.20
	23.09		3.29	3.29	32.28	8.77	41.04	16.57
	23.64		4.38	4.38	32.28	13.15	45.42	17.47
	24.31	4.42	1.10	5.52	36.70	14.25	50.94	35.63
	24.83		2.19	2.19	36.70	16.44	53.14	17.89
	25.45		1.10	1.10	36.70	17.53	54.23	18.36
	26.01		1.10	1.10	36.70	18.63	55.33	19.81
	26.60		3.51	3.51	36.70	22.14	58.83	22.50
	27.99	1.56	1.31	2.88	38.26	23.45	61.71	16.88
	29.46		4.82	4.82	38.26	28.27	66.53	27.94
	30.84		3.73	3.73	38.26	32.00	70.26	26.90
	32.50		6.14	6.14	38.26	38.14	76.40	32.91
	33.78		3.73	3.73	38.26	41.86	80.12	33.83
	35.36		2.63	2.63	38.26	44.49	82.75	35.50
	36.80		2.41	2.41	38.26	46.90	85.16	39.00
	38.51		1.31	1.31	38.26	48.22	86.48	39.94

PIES CODE: CR

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 30 : PIES COAL SUPPLY REGION - ROCKIES

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.21		2.07	2.07		2.07	2.07	
NEW MINES	21.07		2.19	2.19		2.19	2.19	14.29

PIES CODE: CS

DATA SOURCES : ICE INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 31 : PIES COAL SUPPLY REGION - ROCKIES

COAL TYPE: METALLURGICAL COAL (27.0 MBTU/TON)
LOW SULFUR (LESS THAN 0.67 LB3/MBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	9.83		8.06	8.06		8.06	8.06	
NEW MINES	30.51		2.47	2.47		2.47	2.47	24.00
	31.98		.41	.41		2.88	2.88	24.91
	33.55		1.23	1.23		4.11	4.11	29.47
	34.99		.41	.41		4.52	4.52	32.26
	36.75		1.23	1.23		5.75	5.75	36.80
	38.25		.41	.41		6.16	6.16	39.60
	39.76		.41	.41		6.57	6.57	40.60

PIES CODE: CM

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 32 : PIES COAL SUPPLY REGION - ROCKIES

COAL TYPE: HIGH BTU (23.8 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$) *
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	13.35		17.81	17.81		17.81	17.81	
NEW MINES	13.09	1.30		1.30	1.30		1.30	13.71
	14.85	1.30		1.30	2.60		2.60	17.20
	17.14	.73		.78	3.38		3.38	23.84
	20.98	.73	10.95	11.74	4.17	10.95	15.12	15.59
	21.44		10.96	10.96	4.17	21.91	26.08	15.38
	22.43		5.48	5.48	4.17	27.39	31.56	15.20
	22.96		5.48	5.48	4.17	32.87	37.04	16.57
	23.54		9.86	9.86	4.17	42.73	46.90	17.10
	24.18	.73	4.38	5.16	4.95	47.12	52.07	20.89
	24.75		8.77	8.77	4.95	55.89	60.84	17.89
	25.36		4.38	4.38	4.95	60.27	65.22	18.36
	25.92		4.38	4.38	4.95	64.65	69.60	19.81
	26.44		6.79	6.79	4.95	71.45	76.40	22.50
	27.80		3.07	3.07	4.95	74.52	79.47	23.36
	28.09	.25		.26	5.21	74.52	79.73	48.27
	29.13		5.92	5.92	5.21	80.43	85.64	26.68
	29.52		3.95	3.95	5.21	84.38	89.59	29.34
	30.69		3.07	3.07	5.21	87.45	92.66	30.24
	30.86		2.41	2.41	5.21	89.86	95.07	25.07
	32.05		5.92	5.92	5.21	95.78	100.99	33.57
	32.58		5.92	5.92	5.21	101.69	106.90	32.77
	33.64		3.07	3.07	5.21	104.76	109.97	33.13
	33.85		2.41	2.41	5.21	107.17	112.38	37.12
	34.67		.66	.66	5.21	107.83	113.04	38.06
	35.35		4.38	4.38	5.21	112.21	117.42	35.76
	36.80		2.41	2.41	5.21	114.62	119.83	39.00
	38.51		2.19	2.19	5.21	116.82	122.03	39.94

PIES CODE: C1

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, FIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, FIA.

TABLE 33 : PIES COAL SUPPLY REGION - ROCKIES

COAL TYPE: MEDIUM BTU (21.9 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	8.21	2.51	8.01	10.53	2.51	8.01	10.53	
NEW MINES	11.63	3.90		3.90	3.90		3.90	11.02
	13.16	5.21		5.21	9.11		9.11	14.02
	14.35	2.60		2.60	11.71		11.71	17.20
	17.14	2.08		2.08	13.79		13.79	23.84
	20.31	3.64	4.38	8.03	17.44	4.38	21.82	22.32
	21.47		8.77	8.77	17.44	13.15	30.59	15.31
	22.55		3.29	3.29	17.44	16.44	33.88	15.20
	23.09		3.29	3.29	17.44	19.73	37.16	16.57
	23.55		5.48	5.48	17.44	25.20	42.64	17.18
	24.31	3.64	2.19	5.84	21.08	27.40	48.48	31.62
	24.33		4.38	4.38	21.08	31.78	52.86	17.89
	25.45		2.19	2.19	21.08	33.97	55.05	18.36
	26.01		2.19	2.19	21.08	36.17	57.25	19.81
	26.60		3.29	3.29	21.08	39.45	60.53	22.50
	27.37	1.56	2.19	3.75	22.64	41.65	64.29	31.72
	29.43		5.48	5.48	22.64	47.12	69.77	27.29
	30.33		5.26	5.26	22.64	52.38	75.03	27.22
	32.45		6.58	6.58	22.64	58.96	81.60	32.79
	33.79		5.26	5.26	22.64	64.22	86.86	34.16
	35.13		3.29	3.29	22.64	67.51	90.15	36.35
	36.30		3.07	3.07	22.64	70.58	93.22	39.00
	38.51		.22	.22	22.64	70.80	93.44	39.94

PIES CODE: CZ

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRM, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 14 : PIES COAL SUPPLY REGION - SOUTHWEST

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	4.19	38.73	2.83	41.55	38.73	2.83	41.55	
NEW MINES	8.02	26.03		26.03	26.03		26.03	7.83
	8.85	26.30		26.30	52.33		52.33	8.16
	9.65	26.03		26.03	78.36		78.36	10.72
	10.27	20.96		20.96	99.32		99.32	11.13
	11.64	13.22		13.22	112.53		112.53	13.20
	13.14	6.71		6.71	119.25		119.25	15.10
	15.17	.55		.55	119.79		119.79	19.07
	19.48	.82		.82	120.62		120.62	25.59
	22.03	.82	2.19	3.01	121.44	2.19	123.63	19.81
	22.63		2.19	2.19	121.44	4.38	125.82	16.57
	23.16		2.19	2.19	121.44	6.57	128.01	17.94
	25.32	.27		.27	121.71	6.57	128.29	38.62
	26.16		2.19	2.19	121.71	8.77	130.48	22.50
	27.44		.44	.44	121.71	9.20	130.92	23.36
	29.03		2.63	2.63	121.71	11.83	133.55	28.49
	30.34		.44	.44	121.71	12.27	133.99	30.24
	32.02		2.63	2.63	121.71	14.90	136.62	35.34
	33.37		.44	.44	121.71	15.34	137.05	37.12
	34.79		.44	.44	121.71	15.78	137.49	38.06

PIES CODE: CS

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MOEGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 35 : PIES COAL SUPPLY REGION - SOUTHWEST

COAL TYPE: MEDIUM BTU (21.8 MMBTU/TON)
LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	4.19	1.45		1.45	1.45		1.45	
NEW MINES	8.25	15.62		15.62	15.62		15.62	8.09
	8.86	13.01		13.01	28.63		28.63	8.52
	9.68	14.32		14.32	42.95		42.95	10.68
	10.29	11.01		13.01	55.96		55.96	11.42
	11.67	6.51		6.51	62.47		62.47	13.96
	13.36	1.30		1.30	63.77		63.77	17.20
	22.10		1.10	1.10	63.77	1.10	64.86	15.20
	22.63		1.10	1.10	63.77	2.19	65.96	16.57
	23.16		1.10	1.10	63.77	3.29	67.05	17.94
	26.16		1.31	1.31	63.77	4.60	68.37	22.50
	27.44		.44	.44	63.77	5.04	68.81	23.36
	29.01		1.75	1.75	63.77	6.79	70.56	28.06
	30.34		.44	.44	63.77	7.23	71.00	30.24
	31.99		1.75	1.75	63.77	8.99	72.75	34.92
	33.37		.44	.44	63.77	9.42	73.19	37.12
	34.79		.44	.44	63.77	9.86	73.63	39.06

PIES CODE: CZ

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, MCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 16 : PIES COAL SUPPLY REGION - NORTHWEST

COAL TYPE: SUB-BITUMINOUS (19.3 MBTU/TON)

MEDIUM SUDR (GREATER THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	7.81	10.05		10.05	10.05		10.05	
NEW MINES	9.10	2.60		2.60	2.60		2.60	9.62
	10.71	5.21		5.21	7.81		7.81	11.81
	12.30	5.21		5.21	13.01		13.01	14.50
	13.95	5.21		5.21	18.22		18.22	17.20
	15.91	2.60		2.60	20.82		20.82	20.36
	17.94	5.21		5.21	26.03		26.03	23.10
	19.71	7.81		7.81	33.84		33.84	24.31
	22.97	3.90		3.90	37.74		37.74	29.19

PIES CODE: CV

DATA SOURCES : ICF INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
MORGANTOWN PROCESS EVALUATION GROUP, NCA, FRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 37 : PIES COAL SUPPLY REGION - ALASKA

COAL TYPE: SUB-BITUMINOUS (19.4 MMBTU/TON)
 LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

	PRICE STEP (1975 \$/TON)	INCREMENTAL SUPPLY (THOUSANDS OF TONS PER DAY)			CUMULATIVE SUPPLY (THOUSANDS OF TONS PER DAY)			CAPITAL (MILLIONS OF 1975 \$)
		SURFACE	DEEP	TOTAL	SURFACE	DEEP	TOTAL	
EXISTING MINES	3.34	2.14		2.14	2.14		2.14	
NEW MINES	22.19		26.30	26.30		26.30	26.30	9.61
	26.94		21.92	21.92		48.22	48.22	14.63
	27.40		10.96	10.96		59.18	59.18	15.65
	28.65		12.05	12.05		71.23	71.23	15.29
	29.34		12.05	12.05		83.29	83.29	16.57
	30.04		12.05	12.05		95.34	95.34	17.94
	33.92		10.96	10.96		106.30	106.30	22.50
	37.7		10.96	10.96		117.26	117.26	29.39
	41.65		11.18	11.18		128.44	128.44	36.19
	100.00	.26		.26	.26	128.44	128.70	80.85

PIES CODE: CX

DATA SOURCES : JCP INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS,
 MORGANTOWN PROCESS EVALUATION GROUP, NCA, FRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS
 ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLE 3B : TOTAL COAL SUPPLY AT THE HIGHEST PRICE STEP

PIES COAL REGIONS	HI-BTU	MED-BTU	HI-BTU	MED-BTU	LO-BTU	VLO-BTU	VHI-BTU	HI-BTU	MED-BTU	LO-BTU	VLO-BTU	TOTAL BTUS
	HI-S	HI-S	MED-S	MED-S	MED-S	MED-S	LO-S	LO-S	LO-S	LO-S	LO-S	(MILLIONS OF
	(THOUSANDS OF TONS PER DAY)											BTU PER DAY)
NORTHERN APPALACHIA	1095.6	118.7	855.1	16.3			165.5	5.0				53959.7
CENTRAL APPALACHIA	55.2		281.9				629.8	131.9				28163.6
SOUTHERN APPALACHIA			47.6				10.5					1617.9
MIDWEST	464.7	1286.8	290.3	129.3								48839.9
TOTAL EAST	1615.5	1405.5	1474.9	145.6			805.8	136.9				132390.9
CENTRAL WEST	51.1	199.2	21.7		52.5		8.5					7269.0
GULF						288.2						3747.1
N.E. GREAT PLAINS						1339.5					93.0	18622.2
N.W. GREAT PLAINS				264.9	1528.2				302.5	2790.5		91531.0
ROCKIES			86.5	4.3			14.6	139.8	104.0			9141.1
SOUTHWEST				179.0					75.1			5519.8
NORTHWEST					47.8							176.0
ALASKA										130.8		2198.2
TOTAL WEST	51.1	199.2	108.2	449.2	1628.5	1627.7	23.2	139.8	481.6	2921.3	93.0	138124.3
NATIONAL TOTALS	1666.7	1604.7	1583.1	593.8	1628.5	1627.7	829.0	276.7	481.6	2921.3	93.0	270505.2

DATA SOURCES : ICM INC., KEYSTONE STATE GEOLOGICAL SURVEYS, U.S. GEOLOGICAL SURVEYS, MORGANTOWN PROCESS EVALUATION GROUP, NCA, TRW, STATE OFFICES, REGIONAL QUESTIONNAIRES AND VARIOUS ASSUMPTIONS AND ESTIMATES MADE BY THE COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

OFFICE RESPONSIBLE : COAL ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.
COAL TYPE DESCRIPTORS

HI-BTU/HI-S	HIGH BTU (23.8 MMBTU/TON) HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)
MED-BTU/HI-S	MEDIUM BTU (21.8 MMBTU/TON) HIGH SULFUR (GREATER THAN 1.68 LBS/MMBTU)
HI-BTU/MED-S	HIGH BTU (23.8 MMBTU/TON) MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)
MED-BTU/MED-S	MEDIUM BTU (21.8 MMBTU/TON) MEDIUM SULFUR (0.67 TO 1.68 LBS/MMBTU)
LO-BTU/MED-S	SUB-BITUMINOUS (18.3 MMBTU/TON) MEDIUM SULFUR (GREATER THAN 0.67 LBS/MMBTU)
VLO-BTU/MED-S	LIGNITE (13.0 MMBTU/TON) MEDIUM SULFUR (GREATER THAN 0.67 LBS/MMBTU)
VHI-BTU/LO-S	METACALCIC COAL (27.0 MMBTU/TON) LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)
HI-BTU/LO-S	HIGH BTU (23.8 MMBTU/TON) LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)
MED-BTU/LO-S	MEDIUM BTU (21.8 MMBTU/TON) LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)
LO-BTU/LO-S	SUB-BITUMINOUS (18.3 MMBTU/TON) LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)
VLO-BTU/LO-S	LIGNITE (13.0 MMBTU/TON) LOW SULFUR (LESS THAN 0.67 LBS/MMBTU)

IMPORTS DATA

This section contains data documentation for the PIES imports sector. TABLES 1 through 4 and 5 through 8 give alternative levels of crude and oil product imports for the target years, 1985 and 1990, respectively. From the four tables given for each target year, one must be chosen to maximize the level of product imports while maintaining at least 90 percent current capacity utilization in domestic refineries. Each of the four tables corresponds to a specific scenario as indicated in Table II-1. Petroleum product import costs and availabilities are given in sub-tables. Petroleum product export levels and revenues are also shown where they apply.

TABLES 9 and 10 give natural gas imports by demand region for 1985 and 1990, respectively. TABLE 11 breaks out steam and metallurgical coal exports and amount of fixed export by target year. TABLES 9 through 11 correspond to the mid-range scenario.

TABLE II-1. CORRESPONDENCE BETWEEN OIL IMPORT
TABLES AND EIA SCENARIOS

<u>1985</u>	<u>1990</u>	<u>Scenario</u>
1	5	Medium Supply
2	6	High supply
3	7	Low Supply
4	8	5% real increase in world oil prices

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THE FOLLOWING REPORT IS A DATA DOCUMENTATION OF THE IMPORT MODEL OF THE PROJECT INDEPENDENCE EVALUATION SYSTEM. THIS IS KEYED TO THE IMPORT MODEL STRUCTURE AS IT EXISTED FOR THE ANNUAL ADMINISTRATOR'S REPORT OF 1978. THROUGHOUT THE LISTING THE FOLLOWING ABBREVIATIONS ARE USED:

```

MBR/CD -- BILLIONS OF BARRELS PER CALENDER DAY
MR/CD -- THOUSANDS OF BARRELS PER CALENDER DAY
$/OBL -- 1978 DOLLARS PER BARREL
MRCF/CD -- MILLIONS OF CUBIC FEET PER CALENDER DAY
$/MCF -- 1978 DOLLARS PER THOUSAND CUBIC FEET
MT/CD -- THOUSANDS OF TONS PER CALENDER DAY

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0 0 I L          I MM MM P  P 0 0 R R T S
0 0 I L          I M M M PPPPP 0 0 RRRRR T SSSSS
0 0 I L          I M M P 0 0 R R T S
00000 III LLLL   III H  M P 00000 R R T SSSSS

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THE INPUT MODEL PRESENTS A CHOICE OF PETROLEUM TABLES FOR EACH POSSIBLE YEAR OF THE RUN. TABLES 1 - 8 BELOW DISPLAY ALL AVAILABLE TABLES, MORE SPECIFICALLY:

TABLES 1 - 4 FOR YEAR 1985
TABLES 5 - 8 FOR YEAR 1990

AT THE TIME OF MATRIX GENERATION ONE TABLE MUST BE CHOSEN. THE DRIVING VARIABLE BEHIND THE DIFFERENT TABLES IS THE NET LEVEL OF PETROLEUM PRODUCT IMPORTS. IN GENERAL, THE GOAL IS TO CHOOSE AS HIGH A LEVEL OF PRODUCT IMPORTS AS POSSIBLE, HOWEVER, IN SCENARIOS WITH LOW PETROLEUM PRODUCT CONSUMPTION, DOMESTIC REFINERY UTILIZATION MAY BE TOO LOW. IN THAT CASE, THE RUN MUST BE RESUBMITTED WITH A LOWER LEVEL OF PRODUCT IMPORTS. THE DOMESTIC REFINERY UTILIZATION RATE IS TO BE KEPT AT LEAST AT 90% OF CURRENT CAPACITY - AT 16.7 MILLION BARRELS/DAY INPUT.

THE HEADING ON EACH OF THE SUB-TABLES CONTAINS THE PRODUCT IMPORT LEVEL TO WHICH THE SUB-TABLE IS KEYED. THIS NET LEVEL IS THE SUM OF THE UPPER BOUNDS AND FIXED BOUNDS ON EACH INDIVIDUAL PRODUCT TO BE IMPORTED, SUBTRACTING THE FIXED LEVELS OF ANY PRODUCT EXPORTS. THIS CALCULATION IGNORES ANY PRODUCT AVAILABLE IN UNLIMITED QUANTITIES.

THE FIRST SUB-TABLE IN EACH TABLE DESCRIBES THE COST AND COMPOSITION OF THE CRUDE OIL IMPORT BUNDLES. THERE IS ONE BUNDLE FOR EACH COASTAL LANDING POINT OF CRUDE OIL, PLUS ONE FROM CANADA. EACH BUNDLE HAS A FIXED SLATE AND PERCENTAGES OF THE CRUDE OILS WITHIN THAT BUNDLE. IN ADDITION TO THE COST AND COMPOSITION INFORMATION, THERE IS GENERALLY A FIXED LEVEL ON THE CANADIAN CRUDE AND A LOWER BOUND ON THE AMOUNT OF THE LANDED WEST COAST BUNDLE. THESE BOUNDS REFLECT CONTRACTS FOR THE CANADIAN AND INDONESIA CRUDE OIL.

THE SECOND SUB-TABLE IN EACH TABLE DESCRIBES THE IMPORTS OF THE PETROLEUM PRODUCTS AND THEIR COSTS AND AVAILABILITIES. THIS SUB-TABLE MAY INCLUDE ANY OR ALL OF THE FOLLOWING CATEGORIES:

1. THOSE PRODUCTS IMPORTED AT A FIXED LEVEL,
2. THOSE PRODUCTS IMPORTED AT A BOUNDED RANGE,
3. THOSE PRODUCTS IMPORTED IN UNLIMITED QUANTITIES,

THE THIRD SUB-TABLE, IF IT EXISTS, DESCRIBES THE EXPORTS OF THE PETROLEUM PRODUCTS AND THE REVENUES AND FIXED LEVELS.

DATA SOURCES FOR TABLES 1-8: FOREIGN CRUDE DISTRIBUTION BASED ON HISTORICAL TRADE ALLOCATION PATTERNS, TRANSPORTATION AND COST FROM VARIOUS ECONOMETRIC MODELS (E.G., PETROLEUM ALLOCATION MODEL -PAM- OF THE OFFICE OF INTEGRATIVE ANALYSIS, EIA). REFINERY COSTS FROM INTERNATIONAL ENERGY EVALUATION SYSTEM (IEES). OTHER DATA FROM BUREAU OF MINES, CIA, OPEC, OECD, ETC.

OFFICE RESPONSIBLE: INTERNATIONAL ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS,
APPLIED ANALYSIS, EIA, OIL

TABLE 1

TABLE 1.1 CRUDE OIL IMPORT BUNDLES FOR 1985 FOR NET PRODUCT IMPORT LEVEL 2.6 MM/CD-10185				
	CANADA	LANDED EAST COAST	LANDED GULF COAST	LANDED WEST COAST
LANDED PRICE (\$/BBL)	15.32	15.32	15.01	15.49
CRUDE TYPE	PERCENTAGE IN BUNDLE			
LIBYA		6.40	17.80	
NORWAY		3.30	3.10	
UNITED KINGDOM		10.80	1.20	
TRINIDAD		.70	1.30	
BOLIVIA/PERU			.10	
EGYPT/SYRIA/BAHRAIN		2.50	2.40	
ANGOLA/CONGO/ZAIRE		2.30	.40	
SOUTH ASIA MIX			.40	17.20
VENEZUELA		7.50	.70	
NIGERIA/GABON		25.10	7.70	
INDONESIA		2.30	1.10	72.00
CANADA	100.00			
EQUADOR		.20	.70	
MEXICO		1.20	7.80	
ALGERIA		3.40	2.60	
IRAN LIGHT		4.00	12.40	
IRAN HEAVY		1.00	1.20	
SAUDI ARABIA LIGHT		22.90	24.90	10.80
SAUDI ARABIA HEAVY		3.50	1.90	
KUWAIT		.30		
QATAR/U.A.E.		2.60	3.30	
IRAQ			9.00	
FIXED BOUND (MM/CD)	100.00			
LOWER BOUND (MM/CD)				200.00

TABLE 1.2 OIL PRODUCT IMPORTS FOR 1985 FOR NET PRODUCT IMPORT LEVEL 2.6 MM/CD-10185

	FIXED QUANTITY (MM/CD)	PRICE (\$/BBL)	
	-----	-----	
GASOLINE, ALL GRADES	172	21.90	
DISTILLATE, ALL GRADES	376	18.26	
JET FUEL/ JET A	216	15.63	
NAPHTHA	54	16.81	
OTHER REFINED PETROLEUM	104	16.81	
	BOUNDED QUANTITY (MM/CD)	LOWER BOUND (MM/CD)	PRICE (\$/BBL)
	-----	-----	-----
RESIDUAL, ALL GRADES	1677	694	15.63
LIQUID PET. GASSES	IS AVAILABLE IN AN UNLIMITED QUANTITY AT 13.10 \$/BBL		

TABLE 2

TABLE 2.1 CRUDE OIL IMPORT BUNDLES FOR 1985 FOR NET PRODUCT IMPORT LEVEL 2.1 MMB/CD-10285				
	CANADA	LANDED EAST COAST	LANDED GULF COAST	LANDED WEST COAST
LANDED PRICE (\$/BBL)	15.32	15.32	15.01	15.49
CRUDE TYPE	PERCENTAGE IN BUNDLE			
LIBYA		8.80	14.00	
NORWAY		4.20	2.60	
UNITED KINGDOM		13.90	1.70	
TRINIDAD		1.00	1.60	
BOLIVIA/PERU			.10	
EGYPT/SYRIA/HAIRAIN		3.70	2.80	
ANGOLA/CONGO/ZAIRE		3.00	.60	
SOUTH ASIA MIX			.40	17.20
VENEZUELA		6.90	.80	
NIGERIA/GABON		25.00	11.50	
INDONESIA		1.10	1.30	72.00
CANADA	100.00			
EQUADOR		.30	1.00	
MEXICO		1.70	8.70	
ALGERIA		5.00	3.00	
IRAN LIGHT		5.80	8.30	
IRAN HEAVY		.50	.60	
SAUDI ARABIA LIGHT		13.40	26.90	10.80
SAUDI ARABIA HEAVY		1.70	2.00	
KUWAIT		.40	2.70	
QATAR/U.A.E.		3.70	3.70	
IRAQ			5.80	
FIXED BOUND (MMB/CD)	100.00			
LOWER BOUND (MMB/CD)				200.00

TABLE 2.2 OIL PRODUCT IMPORTS FOR 1985 FOR NET PRODUCT IMPORT LEVEL 2.1 MMB/CD-10285

	FIXED QUANTITY (MMB/CD)	PRICE (\$/BBL)	
GASOLINE, ALL GRADES	101	21.90	
DISTILLATE, ALL GRADES	222	18.26	
JET FUEL/ JET A	223	15.63	
NAPHTHA	43	16.81	
OTHER REFINED PETROLEUM	71	16.81	
	BOUNDED QUANTITY (MMB/CD)	LOWER BOUND (MMB/CD)	PRICE (\$/BBL)
RESIDUAL, ALL GRADES	1490	694	15.63
LIQUID PET. GASSES	IS AVAILABLE IN AN UNLIMITED QUANTITY AT 13.10 \$/BBL		

TABLE 3

TABLE 3.1 CRUDE OIL IMPORT BUNDLES FOR 1985 FOR NET PRODUCT IMPORT LEVEL 1.1 MMb/CD-10385				
	CANADA	LANDED EAST COAST	LANDED GULF COAST	LANDED WEST COAST
LANDED PRICE (\$/BBL)	15.32	15.32	15.01	15.49
CRUDE TYPE	PERCENTAGE IN BUNDLE			
LIBYA		8.80	14.00	
NORWAY		4.20	2.60	
UNITED KINGDOM		13.90	1.70	
TRINIDAD		1.00	1.60	
BOLIVIA/PERU			.10	
EGYPT/SYRIA/BAHRAIN		3.70	2.80	
ANGOLA/CONGO/ZAIRE		3.00	.60	
SOUTH ASIA MIX			.40	17.20
VENEZUELA		6.90	.80	
NIGERIA/GABON		25.00	11.50	
INDONESIA		1.10	1.30	72.00
CANADA	100.00			
EQUADOR		.30	1.00	
MEXICO		1.70	8.70	
ALGERIA		5.00	3.00	
IRAN LIGHT		5.80	8.30	
IRAN HEAVY		.50	.60	
SAUDI ARABIA LIGHT		13.40	26.90	10.80
SAUDI ARABIA HEAVY		1.70	2.00	
KUWAIT		.40	2.70	
QATAR/U.A.E.		3.70	3.70	
IRAQ			5.40	
FIXED BUNDLE (MMb/CD)	100.00			
LOWER BUNDLE (MMb/CD)				200.00

TABLE 3.2 OIL PRODUCT IMPORTS FOR 1985 FOR NET PRODUCT IMPORT LEVEL 1.1 MMb/CD-10385

	FIXED QUANTITY (MB/CD)	PRICE (\$/BBL)	
GASOLINE, ALL GRADES	10	21.90	
DISTILLATE, ALL GRADES	27	18.26	
JET FUEL/ JET A	177	15.63	
NAPHTHA	14	14.81	
	BOUNDED QUANTITY (MB/CD)	LOWER BOUND (MB/CD)	PRICE (\$/BBL)
RESIDUAL, ALL GRADES	883	694	15.63
LIQUID PET. GASSES			
IS AVAILABLE IN AN UNLIMITED QUANTITY AT 13.19 \$/BBL			

TABLE 3.3 OIL PRODUCT EXPORTS FOR 1985 FOR NET PRODUCT IMPORT LEVEL 1.1 MMb/CD-10385

	FIXED EXPORT (MMb/CD)	REVENUE (\$/BBL)
OTHER REFINED PETROLEUM	12	15.81

TABLE 4

TABLE 4.1 CRUDE OIL IMPORT BUNDLES FOR 1985 FOR NET PRODUCT IMPORT LEVEL .8 MMBCD=10485				
	CANADA	LANDED EAST COAST	LANDED GULF COAST	LANDED WEST COAST
LANDED PRICE (\$/BBL)	15.32	15.32	15.01	15.49
CRUDE TYPE	PERCENTAGE IN BUNDLE			
LIHVA		10.20	12.00	
NORWAY		4.60	2.40	
UNITED KINGDOM		15.60	2.00	
TRINIDAD		1.20	1.70	
BOLIVIA/PERU			.10	
EGYPT/SYRIA/BAHRAIN		4.30	3.00	
ANGOLA/CONGO/ZAMBIE		3.30	.70	
SOUTH ASIA MIX			.40	17.20
VENEZUELA		6.50	.90	
NIGERIA/GABON		25.00	13.50	
INDONESIA		.50	1.40	72.00
CANADA	100.00			
ECUADOR		.50	1.20	
MEXICO		2.00	9.30	
ALGERIA		5.80	3.20	
IRAQ LIGHT		6.80	6.10	
IRAQ HEAVY		.20	.20	
SAUDI ARABIA LIGHT		8.30	27.90	10.80
SAUDI ARABIA HEAVY		.70	2.00	
KUWAIT		.50	4.20	
QATAR/U.A.E.		4.20	3.90	
IRAQ			4.00	
FIXED BUNDLE (MMBCD)	100.00			
LOWER BUNDLE (MMBCD)				200.00

TABLE 4.2 OIL PRODUCT IMPORTS FOR 1985 FOR NET PRODUCT IMPORT LEVEL .8 MMBCD=10485

	FIXED QUANTITY (MMBCD)	PRICE (\$/BBL)
RESIDUAL ALL GRADES	674	15.63
JET FUEL/ JET A	148	15.63
NAPHTHA	5	16.81

LIQUID PET. GASSES

IS AVAILABLE IN AN UNLIMITED QUANTITY AT 15.10 \$/BBL

TABLE 4.3 OIL PRODUCT EXPORTS FOR 1985 FOR NET PRODUCT IMPORT LEVEL .8 MMBCD=10485

	FIXED EXPORT (MMBCD)	REVENUE (\$/BBL)
OTHER REFINED PETROLEUM	47	16.81

TABLE 5

TABLE 5.1 CRUDE OIL IMPORT BUNDLES FOR 1990 FOR NET PRODUCT IMPORT LEVEL 3.0 MMH/CD=10190				
	CANADA	LANDED EAST COAST	LANDED GULF COAST	LANDED WEST COAST
LANDED PRICE (\$/BBL)	15.52	15.32	15.01	15.49
CRUDE TYPE	PERCENTAGE IN BUNDLE			
LIBYA		4.70	8.80	
NORWAY		1.90	1.10	
UNITED KINGDOM		12.90	1.90	
TRINIDAD		.10	.90	
EGYPT/SYRIA/BAHRAIN		1.90	2.30	
ANGOLA/CONGO/ZAIRES		1.20	.20	
SOUTH ASIA MIX			.20	10.60
VENEZUELA		2.50	.30	
NIGERIA/GABON		11.80	7.60	
INDONESIA		1.60	.70	64.80
CANADA	100.00			
EQUADOR			.10	9.90
MEXICO		1.90	10.90	
ALGERIA		3.20	1.00	
IRAN LIGHT		.80	.20	
IRAN HEAVY		3.00	5.70	
SAUDI ARABIA LIGHT		34.40	17.50	14.60
SAUDI ARABIA HEAVY		14.70	5.80	
KUWAIT			3.90	
QATAR/U.A.E.		3.30	13.60	
IRAN			17.00	
FIXED QUANTITY (MM/CD)	100.00			
LOWER BOUND (MM/CD)				222.00

TABLE 5.2 OIL PRODUCT IMPORTS FOR 1990 FOR NET PRODUCT IMPORT LEVEL 3.0 MMH/CD=10190

	FIXED QUANTITY (MM/CD)	PRICE (\$/BBL)	
GASOLINE, ALL GRADES	172	21.90	
DISTILLATE, ALL GRADES	376	18.26	
JET FUEL/ JET A	216	15.63	
NAPHTHA	434	16.81	
OTHER REFINED PETROLEUM	104	16.81	
	BOUNDED QUANTITY (MM/CD)	LOWER BOUND (MM/CD)	PRICE (\$/BBL)
RESIDUAL, ALL GRADES	1677	694	15.63
LIMIT TO PET. GASSES	IS AVAILABLE IN AN UNLIMITED QUANTITY AT 13.10 \$/BBL		

TABLE 6

TABLE 6.1 CRUDE OIL IMPORT BUNDLES FOR 1990 FOR NET PRODUCT IMPORT LEVEL 2.3 MMB/CD-10290

	CANADA	LANDED EAST COAST	LANDED GULF COAST	LANDED WEST COAST
LANDED PRICE(\$/BBL)	15.32	15.32	15.01	15.49
CRUDE TYPE	PERCENTAGE IN BUNDLE			
LIBYA		4.50	11.80	
NORWAY		1.90	1.50	
UNITED KINGDOM		13.70	2.50	
TRINIDAD		.10	1.40	
EGYPT/SYRIA/BAHRAIN		2.00	2.70	
ANGOLA/CONGO/ZAIRE		1.20	.40	
SOUTH ASIA MIX			.20	8.70
VENEZUELA		2.70	.50	
NIGERIA/GABON		12.60	12.10	
INDONESIA		1.70	1.10	69.20
CANADA	100.00			
EQUADOR			.20	3.90
MEXICO		2.00	15.30	
ALGERIA		3.40	1.60	
IRAN LIGHT		.90	.20	
IRAN HEAVY		3.20	2.90	
SAUDI ARABIA LIGHT		32.90	19.90	18.20
SAUDI ARABIA HEAVY		14.10	7.90	
KUWAIT			1.50	
QATAR/U.A.E.		3.20	8.40	
IRAN			7.90	
FIXED BOUND(MB/CD)	100.00			
LOWER BOUND(MB/CD)				209.00

TABLE 6.2 OIL PRODUCT IMPORTS FOR 1990 FOR NET PRODUCT IMPORT LEVEL 2.3 MMB/CD-10290

	FIXED QUANTITY (MB/CD)	PRICE (\$/BBL)
GASOLINE, ALL GRADES	77	21.90
DISTILLATE, ALL GRADES	171	18.26
JET FUEL/ JET A	221	19.63
NAPHTHA	400	16.81
OTHER REFINED PETROLEUM	56	16.81
ROUNDED QUANTITY (MB/CD)	1337	694
REGIONAL, ALL GRADES		15.63
LIQUID PET. GASSES	IS AVAILABLE IN AN UNLIMITED QUANTITY AT 13.10 \$/BBL	

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TABLE 7

TABLE 7.1 CRUDE OIL IMPORT BUNDLES FOR 1990 FOR NET PRODUCT IMPORT LEVEL 1.1 MMH/CD-10390				
	CANADA	LANDED EAST COAST	LANDED GULF COAST	LANDED WEST COAST
LANDED PRICE (\$/HHL)	15.32	15.32	15.01	15.49
CRUDE TYPE	PERCENTAGE IN BUNDLE			
LIHVA		4.50	11.80	
NORWAY		1.90	1.50	
UNITED KINGDOM		13.70	2.50	
TRINIDAD		.10	1.40	
EGYPT/SYRIA/BAHRAIN		2.00	2.70	
ANGOLA/CONGO/ZAIRE		1.20	.40	
SOUTH ASIA MIX			.20	8.70
VENEZUELA		2.70	.50	
NIGERIA/GABON		12.60	12.10	
INDONESIA		1.70	1.10	69.20
CANADA	100.00			
ECUADOR			.20	3.90
MEXICO		2.00	15.30	
ALGERIA		3.40	1.60	
IRAN LIGHT		.90	.20	
IRAN HEAVY		3.20	2.90	
SAUDI ARABIA LIGHT		32.90	19.90	18.20
SAUDI ARABIA HEAVY		14.10	7.90	
KUWAIT			1.50	
QATAR/U.A.E.		3.20	8.40	
IRAQ			7.90	
FIXED BOUND (MM/CD)	100.00			
LOWER BOUND (MM/CD)				209.00

TABLE 7.2 OIL PRODUCT IMPORTS FOR 1990 FOR NET PRODUCT IMPORT LEVEL 1.1 MMH/CD-10390

	FIXED QUANTITY (MM/CD)	PRICE (\$/HHL)	
DISTILLATE, ALL GRADES	6	18.26	
JET FUEL/ JET A	159	15.63	
NAPHTHA	200	16.81	
	BOUNDED QUANTITY (MM/CD)	LOWER BOUND (MM/CD)	PRICE (\$/HHL)
RESIDUAL, ALL GRADES	758	694	15.63
LIQUID PET. GASSES	IS AVAILABLE IN AN UNLIMITED QUANTITY AT 13.10 \$/HHL		

TABLE 7.3 OIL PRODUCT EXPORTS FOR 1990 FOR NET PRODUCT IMPORT LEVEL 1.1 MMH/CD-10390

	FIXED EXPORT (MM/CD)	REVENUE (\$/HHL)
OTHER REFINED PETROLEUM	32	16.81

TABLE A

TABLE 8.1 CRUDE OIL IMPORT BUNDLES FOR 1990 FOR NET PRODUCT IMPORT LEVEL 1.0 MMH/CD-10490

	CANADA	LANDED EAST COAST	LANDED GULF COAST	LANDED WEST COAST
LANDED PRICE (\$/HBL)	15.32	15.32	15.01	15.49
CRUDE TYPE	PERCENTAGE IN BUNDLE			
LIRYA		4.40	12.90	
NORWAY		1.90	1.70	
UNITED KINGDOM		14.00	2.70	
TRINIDAD		.10	1.50	
EGYPT/SYRIA/BAHRAIN		2.00	2.80	
ANGOLA/CONGO/ZAIRE		1.30	.40	
SOUTH ASIA MIX			.20	8.00
VENEZUELA		2.70	.50	
NIGERIA/GABON		12.80	13.50	
INDONESIA		1.80	1.20	70.70
CANADA	100.00			
EQUADOR			.30	1.80
MEXICO		2.00	16.80	
ALGERIA		3.50	1.80	
IRAN LIGHT		.90	.30	
IRAN HEAVY		3.20	1.90	
SAUDI ARABIA LIGHT		32.30	20.70	19.40
SAUDI ARABIA HEAVY		13.80	8.60	
KUWAIT			.70	
QATAR/U.A.E.		3.10	6.50	
IRAN			4.80	
FIXED BOUND (MMH/CD)	100.00			
LOWER BOUND (MMH/CD)				204.00

TABLE 8.2 OIL PRODUCT IMPORTS FOR 1990 FOR NET PRODUCT IMPORT LEVEL 1.0 MMH/CD-10490

	FIXED QUANTITY (MMH/CD)	PRICE (\$/HBL)
RESIDUAL, ALL GRADES	694	15.63
JET FUEL/ JET A	148	15.63
NAPHTHA	200	16.81

LIQUID PET. GASSES

13 AVAILABLE IN AN UNLIMITED QUANTITY AT 13.10 \$/HBL

TABLE 8.3 OIL PRODUCT EXPORTS FOR 1990 FOR NET PRODUCT IMPORT LEVEL 1.0 MMH/CD-10490

	FIXED EXPORT (MMH/CD)	REVENUE (\$/HBL)
OTHER REFINED PETROLEUM	47	16.61

D H AAAAA TTTT H U HRRHR AAAAA L RGGGG AAAAA SSSSS III H H PPPPP QQQQQ RRRRR TTTT SSSSS
 H H A A T U H R A A L G A A S I H H P P O U R H T S
 H H AAAAA T U HRRHR AAAAA L G GG AAAAA SSSSS I H H PPPPP O Q HRRHR T SSSSS
 H H A A T U H R A A L G G A A S I H H P O U R H T S
 H H A A T QQQQ H R A A LLLL GGGGG A A SSSS III H H P QQQQ H R T SSSSS

TABLES 9 AND 10 DISPLAY THE LEVEL AND PRICES OF NATURAL GAS IMPORTS BY THE SOURCE OF THE GAS AND BY DEMAND REGION, ONE TABLE FOR EACH YEAR. NOTE THAT LIQUIFIED NATURAL GAS IS THAT GAS WHICH IS IMPORTED BY TANKER FROM ALGERIA. THE BOUNDS ARE OBTAINED FROM CURRENT CONTRACTUAL AGREEMENTS.

THE DEMAND REGIONS INDICATE THE DESTINATION OF THE GAS UNDER THE CONTRACTS. HOWEVER, THE CURRENT IMPLEMENTATION OF THE IMPORTS DOES NOT FORCE THE FLOWS INTO THIS PATTERN. THE GAS CAN MOVE THROUGH THE TRANSPORTATION NETWORK IN WHATEVER WAY THE LINEAR PROGRAM DECIDES IS OPTIMAL. A MINOR EXCEPTION HOLDS FOR THE LIQUIFIED NATURAL GAS WHICH IS DIVIDED INTO EAST AND WEST LANDING POINTS WITH THE TRANSPORTATION LINKS FROM EACH POINT SERVING THE EASTERN OR WESTERN DEMAND REGIONS.

DATA SOURCES FOR TABLES 9-10 :

LNG: MEMO FROM KINCEL (FORMERLY OF PAPE) TO JOHN CHRISTIE (FORMERLY OF EIA), DATED 3/19/77.
 SUBJECT: SPECIFICATIONS FOR COMPUTER MODEL TO PROVIDE FOR LNG IMPORTS.
 CANADIAN NG: MEMO FROM CHARLES EVERETT (OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA, DOE,) TO HARVEY GREENBERG (FORMERLY OF OFFICE OF ANALYTIC METHODS, APPLIED ANALYSIS, EIA, DOE) DATED.
 SUBJECT: OIL & GAS SUPPLY ASSUMPTIONS (TABLE 3).

OFFICE RESPONSIBLE : INTERNATIONAL ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS, APPLIED ANALYSIS
EIA, DOE.

TABLE 9

NATURAL GAS IMPORTS FOR 1985-1985					
-----LIQUIFIED NATURAL GAS-----			-----CANADIAN NATURAL GAS-----		
DEMAND REGION	POINT OF ENTRY	UPPER BOUND (MMCF/CD)	PRICE (\$/MCF)	UPPER BOUND (MMCF/CD)	PRICE (\$/MCF)
01 NW-ENG.	EAST COAST	323.29	3.83	10.96	2.10
02 NY/NJ	EAST COAST	241.10	3.53	16.44	2.10
03 MID-ATL	EAST COAST	884.93	2.71		
04 S.-ATL	EAST COAST	671.23	3.53		
05 MID-WEST	EAST COAST	460.27	4.24	698.63	2.10
06 N-CENTRL				98.63	2.10
09 WEST	WEST COAST	1268.49	4.36	1073.97	2.10
0A N.-WEST				583.56	2.10

TABLE 10

NATURAL GAS IMPORTS FOR 1990-1990					
-----LIQUIFIED NATURAL GAS-----			-----CANADIAN NATURAL GAS-----		
DEMAND REGION	POINT OF ENTRY	UPPER BOUND (MMCF/CD)	PRICE (\$/MCF)	UPPER BOUND (MMCF/CD)	PRICE (\$/MCF)
01 NW-ENG.	EAST COAST	728.77	5.07		
02 NY/NJ	EAST COAST	1326.03	5.30		
03 MID-ATL	EAST COAST	1068.49	3.93		
04 S.-ATL	EAST COAST	679.45	4.01		
05 MID-WEST	EAST COAST	1024.66	4.45	698.63	2.10
07 CENTRAL	EAST COAST	246.98	4.71		
08 N-CENTRL				98.63	2.10
09 WEST	WEST COAST	620.66	4.36	1073.97	2.10

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CCCCC OOOOO AAAAA L      EEEEE X X P P P P OOOOO RRRR TTTT SSSS
C   O   O A A L      E   X X P P O O R R T S
C   O   O AAAAA L      EEEEE X P P P P O O RRRR T SSSS
C   O   O A A L      E   X X P O O R R T S
CCCCC OOOOO A A LLLL      EEEEE X X P OOOOO R R T SSSS

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TABLE 11 DISPLAYS, BY YEAR, THE FIXED LEVEL OF COAL EXPORTS AND THE FIXED RATIO OF THE SPLIT BETWEEN STEAM AND METALLURGICAL COALS. THE COAL IS MODELED AS LEAVING FROM AN EAST COAST PORT AND THE REVENUE, NOT SHOWN HERE, IS THE MARGINAL COST OF THE COALS AT THAT PORT.

DATA SOURCE FOR TABLE 11 :

MEMO FROM MIKE GAFFEN (FORMERLY OF THE COAL ANALYSIS DIVISION, ENERGY INFORMATION ANALYSIS) THRU PHIL CHILDRESS (COAL ANALYSIS DIVISION, ENERGY INFORMATION ANALYSIS, EIA) TO KENNETH KINCEL (FORMERLY OF THE OFFICE OF POLICY AND PROGRAM EVALUATION, PAPE), DATED 12/30/77, SUBJECT: PIES COAL EXPORTS, ALL OFFICES MENTIONED ABOVE IN DOE.

OFFICE RESPONSIBLE : INTERNATIONAL ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS, APPLIED ANALYSIS, ENERGY INFORMATION ADMINISTRATION, DOE.

TABLE 11

COAL EXPORTS-1M185 & 1M190

YEAR	FIXED EXPORT (MT/CD)	COAL MIX	
		METALLURGICAL	HIGH SULFUR STEAM
1985	202.74	.76	.24
1990	221.92	.73	.27

OIL AND GAS DATA

This section contains oil and gas standard tables. The printout includes detailed descriptions of each table and lists of the abbreviations used preceding the tables themselves.

TABLES 1, 2, 5 and 6 give the price trajectories for each year from 1977 to 1991. Tables 3, 4, 7 and 8 contain the price and production data that define the steps of the supply curves. Only one price step, step 5, is given for oil.

TABLES 9 through 24 are obtained by taking various combinations of the supply curve tables, TABLES 3, 4, 7 and 8. The last three tables, TABLES 25, 26, and 27 contain factors showing the proportions of crude, and intrastate gas and co-products among supply, NPC and DOE regions. NPC, DOE Oil Supply and DOE Gas Supply regions are shown in Figures II-3, 4 and 5 respectively.

FIGURE II-3
OIL SUPPLY REGIONS

FIGURE II-4
NPC REGIONS *

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* REGIONAL BOUNDARIES (Reg. 1-ALASKA and HAWAII; Reg. 2-PACIFIC COAST STATES; Reg. 3-WESTERN ROCKY MOUNTAINS; Reg. 4-EASTERN ROCKY MOUNTAINS; Reg. 5-WEST TEXAS and EASTERN NEW MEXICO; Reg. 6-WESTERN GULF BASIN; Reg. 7-MIDCONTINENT; Reg. 8-MICHIGAN BASIN; Reg. 9-EASTERN INTERIOR; Reg. 10-APPALACHIANS; Reg. 11-EASTERN GULF and ATLANTIC COAST)

FIGURE II-5
NATURAL GAS SUPPLY REGIONS

OIL AND GAS SUPPLY DATA
INPUTS TO THE PIES INTEGRATING MODEL
1978 ANNUAL ADMINISTRATOR'S REPORT
MID-RANGE FORECAST

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THE PRODUCTION OF CRUDE OIL, NATURAL GAS AND NATURAL GAS LIQUIDS IS REPRESENTED IN THE PIES INTEGRATING MODEL BY A COLLECTION OF SUPPLY CURVES, ONE FOR EACH COMBINATION OF REGION (NPC REGION), TYPE OF WELL (OIL OR GAS), VINTAGE (NEW OR OLD), AND, IN THE CASE OF OIL WELLS, TYPE OF PRODUCTION (PRIMARY, SECONDARY OR TERTIARY). EACH SUPPLY CURVE IS A STEP FUNCTION CONSISTING OF NINE PRICE STEPS. AS SHOWN IN THE FIGURE BELOW, EACH STEP GIVES QUANTITY OF PRODUCTION ASSOCIATED WITH A GIVEN WELL-HEAD PRICE.

A NINE STEP SUPPLY CURVE

HOWEVER, THE ABOVE FIGURE UNDERSTATES THE INFORMATION CONTENT OF EACH STEP. IN FACT, AT EACH STEP PRICES ARE ASSUMED AND QUANTITIES ARE GIVEN FOR EACH OF FOUR PRODUCTS (CRUDE OIL, ASSOCIATED AND DISSOLVED GAS, BUTANE, AND OTHER GAS LIQUIDS), IN THE CASE OF OIL WELLS, AND THREE PRODUCTS (NON-ASSOCIATED GAS, BUTANE AND OTHER GAS LIQUIDS) IN THE CASE OF GAS WELLS. IN ADDITION, EACH STEP ALSO CARRIES WITH IT THE AMOUNT OF DRILLING AND CAPITAL INVESTMENT REQUIRED TO REACH THE INDICATED LEVEL OF PRODUCTION.

THE SUPPLY CURVES ARE GENERATED BY THE PIES OIL AND GAS SUPPLY MODEL. THIS MODEL IS DYNAMIC IN THAT SUPPLY CURVES FOR ALL YEARS FROM 1977 TO 1991 ARE GENERATED SIMULTANEOUSLY USING THE PRICE TRAJECTORIES SHOWN IN TABLES 1 AND 2 FOR OIL WELLS AND IN TABLES 5 AND 6 FOR GAS WELLS. THE SUPPLY MODEL IS RUN ONCE FOR EACH STEP AND GENERATES THE HISTORY OF CAPITAL INVESTMENT, DRILLING, AND PRODUCTION FOR EACH PRODUCT

THAT WOULD RESULT IF WELL-HEAD PRICES WERE TO FOLLOW THE PRICE TRAJECTORIES FOR THE GIVEN STEP. THE PIES SUPPLY CURVES ARE THEN OBTAINED BY SELECTING THE PRICES AND CORRESPONDING QUANTITIES FOR THE YEARS 1985 AND 1990.

THE GAS PRODUCTION PROJECTED BY THE OIL AND GAS SUPPLY MODEL IS DIVIDED BETWEEN THE INTERSTATE AND INTRASTATE MARKETS ACCORDING TO THE FOLLOWING RULES: (1) ALL ALASKAN AND OCS GAS IS INTERSTATE, (2) ALL NEW LOWER 48 ONSHORE GAS IS INTRASTATE AND (3) ALL OLD ONSHORE GAS IS DIVIDED ACCORDING TO REGION SPECIFIC HISTORICAL (1974) PROPORTIONS. IT SHOULD BE MENTIONED THAT THIS A PRIORI DIVISION IS SUBJECT TO REVISION BY THE INTEGRATING MODEL WHICH HAS THE CAPABILITY OF SHIFTING SOME GAS WHICH HAS BEEN DESIGNATED AS INTRASTATE BY THE ABOVE RULES INTO THE INTERSTATE MARKET AS REQUIRED TO KEEP THE INTRASTATE PRICE FROM FALLING BELOW THE INTERSTATE PRICE.

TABLES 3, 4, 7 AND 8 GIVE THE SUPPLY CURVES BY REGION, VINTAGE AND TYPE. THE PRICE STEP IS GIVEN BY THE STEP NUMBER, ALLOWING REFERENCE TO THE PRICE TRAJECTORY TABLES TO FIND ASSUMED PRICES FOR EACH PRODUCT. THESE PRICES ARE NOT USED IN THE INTEGRATING MODEL, HOWEVER, SINCE IT SPECS THE INCREMENT IN PRODUCTION FROM ONE STEP TO THE NEXT AS A BUNDLE OF COMMODITIES WHICH IT MUST EITHER PRODUCE OR NOT PRODUCE TOGETHER. THUS A SINGLE PRICE, CALLED THE BUNDLE PRICE, IS ASSIGNED TO EACH STEP. BY DEFINITION, THE BUNDLE PRICE IS THE RATIO OF THE TOTAL VALUE OF THE INCREMENT IN PRODUCTION FROM THE PREVIOUS STEP (INCLUDING ALL FOUR OR THREE PRODUCTS, USING PRICES FROM TABLES 1, 2, 5 AND 6) TO THE QUANTITY OF CRUDE OIL OR NON-ASSOCIATED GAS IN THAT INCREMENT. THIS SOMEWHAT AWKWARD CONVENTION IS NECESSITATED BY THE FACT THAT THE BUNDLE CONTAINS COMMODITIES MEASURED IN DIFFERENT UNITS. NOTE THAT THESE TABLES SHOW NATURAL GAS BROKEN OUT ACCORDING TO WHICH MARKET (INTERSTATE OR INTRASTATE) IT BELONGS.

IT SHOULD BE EMPHASIZED THAT VINTAGE, AS USED IN THIS DOCUMENTATION, MERELY DESCRIBES WHETHER A WELL WAS DRILLED BEFORE OR AFTER 1/1/77, AND, AS SUCH, IS DIFFERENT FROM THE LEGAL CONCEPTS OF OIL AND GAS VINTAGE.

THE ALASKAN NORTH SLOPE AND ELK'S HILL ARE NOT INCLUDED IN THE OIL AND GAS SUPPLY MODEL. ACCORDINGLY ENGINEERING ESTIMATES OF PRODUCTION AND COST ARE USED FOR THESE REGIONS. THESE REGIONS ARE INDICATED IN THE TABLES BY AN '**' IN THE PRICE STEP COLUMN.

THE SCENARIOS WHICH MODEL OIL REGULATION ARE DISTINCTIVE. SINCE WELL-HEAD PRICES ARE CONTROLLED, ONLY ONE PRICE STEP IS USED AND THE QUANTITY OF DOMESTIC CRUDE AVAILABLE IS FIXED. ALSO, THE BUNDLE PRICE IS NOT CALCULATED AND IS LISTED IN THE TABLES AS '***'.

IN GAS REGULATION SCENARIOS THE DISTRIBUTION OF INTERSTATE GAS IS ESSENTIALLY FIXED. THIS DISTRIBUTION AND RESULTING DELIVERIES ARE GIVEN IN TABLES 9-12. THE INTEGRATING

MODEL MAY ALTER THESE DISTRIBUTIONS IN THE FOLLOWING WAYS:
 (1) A REGION MAY TAKE LESS INTERSTATE GAS THAN IS ASSIGNED TO IT, (2) EXCESS INTERSTATE GAS IN ONE REGION MAY BE REASSIGNED TO ANOTHER REGION AND (3) GAS ORIGINALLY DESIGNATED AS INTRASTATE NOT SHIPPED TO THE INTERSTATE MARKET WILL AUGMENT THE STATED DISTRIBUTION.

TABLES 13-24 SUMMARIZE THE INFORMATION IN THE OIL AND GAS SUPPLY CURVES. TABLES 13 AND 14 AGGREGATE OIL AND GAS PRODUCTION, INVESTMENT AND DRILLING STATISTICS OVER VINTAGE AND TYPE OF PRODUCTION. TABLES 15-22 DO THE SAME FOR GAS WELLS AT ALL PRICE STEPS. THEN TABLES 23 AND 24 COMBINE THE PRODUCTION FROM OIL AND GAS WELLS AND SHOW THE MAXIMUM QUANTITY OF EACH FUEL AVAILABLE TO THE INTEGRATING MODEL.

TABLE 25 SHOWS THE MIX OF CRUDE TYPES ASSUMED FOR EACH NPC REGION. THESE PROPORTIONS ARE APPLIED IRRESPECTIVE OF THE VINTAGE OR TYPE OF PRODUCTION.

TABLES 26 AND 27 PROVIDE SOME INFORMATION REQUIRED BECAUSE OF THE WAY INTRASTATE GAS PRODUCTION AND DISTRIBUTION IS MODELED. ASSOCIATED AND DISSOLVED INTRASTATE GAS IS PRODUCED IN NPC REGIONS BUT IS DISTRIBUTED FROM DOE REGIONS. THIS REQUIRES A LOGICAL SHIFT OF ASSOCIATED INTRASTATE GAS FROM NPC REGIONS TO DOE REGIONS. TABLE 26 GIVES THE FRACTION OF INTRASTATE GAS PRODUCED IN EACH NPC REGION THAT IS SHIPPED TO EACH DOE REGION FOR DISTRIBUTION. SIMILARLY, GAS LIQUIDS FROM INTRASTATE GAS WELLS ARE PRODUCED IN DOE REGIONS BUT DISTRIBUTED FROM NPC REGIONS. TABLE 27 GIVES THE FRACTION OF INTRASTATE GAS LIQUIDS PRODUCED IN EACH DOE REGION THAT IS SHIPPED TO EACH NPC REGION.

ALL DOLLARS ARE CONSTANT 1975 DOLLARS. VOLUMES OF NATURAL GAS ASSUME A HEAT VALUE OF 1032 BTU/CF. THE ENTRIES UNDER THE COLUMN HEADINGS CAPITAL AND FOOTAGE DRILLED ARE THE CUMULATIVE CAPITAL INVESTMENT AND CUMULATIVE FOOTAGE DRILLED FROM 1977 TO ONE YEAR PRIOR (1984 OR 1989) TO THE TARGET YEAR (1985 OR 1990). THE ABBREVIATIONS USED IN THIS REPORT FOR THE VARIOUS UNITS OF MEASUREMENT ARE AS FOLLOWS:

BBL, MBBL	BARREL, THOUSAND BARRELS
MCP, MMCP	THOUSAND CUBIC FEET, MILLION CUBIC FEET
M\$	MILLION DOLLARS (1975 DOLLARS)
MMPT	MILLION FEET
D	DAY

TABLE 1
PRICE TRAJECTORIES FOR OIL AND GAS LIQUIDS
(\$/BDL)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
STEP 1	12.62	11.99	11.39	10.82	10.28	9.77	9.28	8.81	8.37	8.37	8.37	8.37	8.37	8.37	8.37
STEP 2	12.62	12.24	11.87	11.52	11.17	10.84	10.51	10.20	9.89	9.89	9.89	9.89	9.89	9.89	9.89
STEP 3	12.62	12.37	12.12	11.88	11.64	11.41	11.18	10.96	10.74	10.74	10.74	10.74	10.74	10.74	10.74
STEP 4	12.62	12.49	12.37	12.25	12.12	12.00	11.88	11.76	11.65	11.65	11.65	11.65	11.65	11.65	11.65
STEP 5	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62	12.62
STEP 6	12.62	12.75	12.87	13.00	13.13	13.26	13.40	13.53	13.67	13.67	13.67	13.67	13.67	13.67	13.67
STEP 7	12.62	12.87	13.13	13.39	13.66	13.93	14.21	14.50	14.79	14.79	14.79	14.79	14.79	14.79	14.79
STEP 8	12.62	13.00	13.39	13.79	14.20	14.61	15.07	15.52	15.99	15.99	15.99	15.99	15.99	15.99	15.99
STEP 9	12.62	13.25	13.91	14.61	15.34	16.11	16.91	17.76	18.65	18.65	18.65	18.65	18.65	18.65	18.65

DATA SOURCES : OUTPUT FROM THE PIES OIL & GAS SUPPLY MODEL DERIVED FROM
AVERAGE REFERENCE ACQUISITION COSTS, TRANSPORTATION COSTS,
AND OTHER RELEVANT COSTS AND PRICES. ALSO PLATT'S OILGRAM, WASHINGTON, D.C
A WEEKLY PUBLICATION.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY
SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 2
PRICE TRAJECTORIES FOR ASSOCIATED AND DISSOLVED GAS
(\$/MCF)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
STEP 1	2.17	2.06	1.96	1.86	1.77	1.68	1.60	1.52	1.44	1.44	1.44	1.44	1.44	1.44	1.44
STEP 2	2.17	2.11	2.04	1.98	1.92	1.86	1.81	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.70
STEP 3	2.17	2.13	2.08	2.04	2.00	1.96	1.92	1.88	1.85	1.85	1.85	1.85	1.85	1.85	1.85
STEP 4	2.17	2.15	2.13	2.11	2.08	2.06	2.04	2.02	2.00	2.00	2.00	2.00	2.00	2.00	2.00
STEP 5	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17	2.17
STEP 6	2.17	2.19	2.21	2.24	2.26	2.28	2.30	2.33	2.35	2.35	2.35	2.35	2.35	2.35	2.35
STEP 7	2.17	2.21	2.26	2.30	2.35	2.40	2.44	2.49	2.54	2.54	2.54	2.54	2.54	2.54	2.54
STEP 8	2.17	2.24	2.30	2.37	2.44	2.52	2.59	2.67	2.75	2.75	2.75	2.75	2.75	2.75	2.75
STEP 9	2.17	2.28	2.39	2.51	2.64	2.77	2.91	3.05	3.21	3.21	3.21	3.21	3.21	3.21	3.21

DATA SOURCES : OUTPUT FROM THE PIES OIL & GAS SUPPLY MODEL DERIVED FROM
AVERAGE REFERENCE ACQUISITION COSTS, TRANSPORTATION COSTS,
AND OTHER RELEVANT COSTS AND PRICES. ALSO PLATT'S OILGRAM, WASHINGTON, D.C
A WEEKLY PUBLICATION.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY
SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 3
OIL SUPPLY CURVES FOR 1985

	PRICE CRUDE OIL STEP		INTERSTATE GAS (MMCF/D)	INTRASTATE GAS (MMCF/D)	BUTANE (MMBBL/D)	GAS LIQUIDS (MMBBL/D)	BUNDLE PRICE (\$/BBL OIL)	CAPITAL (MM\$)	FOOTAGE DRILLED (MMFT)

NPC REGION-SOUTH ALASKA									
	NEW PRIMARY	5	236.80	98.27			**	1284.00	5.99
	NEW SECONDARY	5	16.70	6.84			**	47.00	
	OLD PRIMARY	5	47.50	19.71			**		
	OLD SECONDARY	5	14.90	6.30			**	73.00	
NPC REGION-PACIFIC COAST									
EXCLUDING ELK'S HILL									
	NEW PRIMARY	5	198.30		69.52	1.69	.79	**	2926.00
	NEW SECONDARY	5	52.70		18.61	.40	.19	**	75.00
	OLD PRIMARY	5	335.10		131.96	3.08	1.57	**	
	OLD SECONDARY	5	29.50		10.40	.20	.10	**	71.00
	OLD TERTIARY	5	40.70					**	350.00
ELK'S HILL									
	NEW PRIMARY	*	175.00					**	728.44
NPC REGION-PACIFIC OCEAN									
	NEW PRIMARY	5	43.80	59.96		1.60	1.20	**	154.00
	NEW SECONDARY	5	.50	.82				**	2.00
	OLD PRIMARY	5	105.90	153.86		4.89	3.70	**	
	OLD SECONDARY	5	58.60	80.76		2.20	1.70	**	247.00
NPC REGION-WEST ROCKIES									
	NEW PRIMARY	5	105.40		101.05	2.79	2.10	**	1301.00
	NEW SECONDARY	5	18.80		17.79	.50	.30	**	16.00
	OLD PRIMARY	5	41.80	29.29	13.37	1.40	1.00	**	
	OLD SECONDARY	5	105.80	70.98	32.40	2.79	2.09	**	180.00

VINTAGE (OLD, NEW) INDICATES WHETHER OIL WELLS DRILLED BEFORE OR AFTER 1/1/77 (NOTE DIFFERENCE FROM LEGAL DEFINITION OF OIL VINTAGE).

A * IN THE PRICE STEP COLUMN INDICATES DATA FOR THAT REGION ARE ENGINEERING ESTIMATES.

BUNDLE PRICE = (TOTAL VALUE OF ALL PRODUCTS IN INCREMENT OVER PREVIOUS PRICE STEP)/(QUANTITY OF OIL IN THAT INCREMENT).

A ** IN BUNDLE PRICE COLUMN INDICATES BUNDLE PRICE NOT CALCULATED FOR OIL REGULATION SCENARIOS WITH POINT ESTIMATES OF SUPPLY.

CAPITAL INVESTMENT AND DRILLING STATISTICS ARE CUMULATIVE FROM 1977 TO 1984.

TABLE 3
(CONTINUED)
OIL SUPPLY CURVES FOR 1985

		PRICE CRUDE OIL STEP	(MBBL/D)	INTERSTATE GAS (MMCF/D)	INTRASTATE GAS (MMCF/D)	BUTANE (MBBL/D)	GAS LIQUIDS (MBBL/D)	BUNDLE PRICE (\$/BBL OIL)	CAPITAL (MM\$)	FOOTAGE DRILLED (MMFT)
NPC REGION-EAST ROCKIES										
	NEW PRIMARY	5	133.50		82.13	5.10	1.70	**	1111.00	85.00
	NEW SECONDARY	5	19.50		12.59	.80	.30	**	19.00	
	OLD PRIMARY	5	155.80	47.71	37.70	4.39	1.50	**		
	OLD SECONDARY	5	183.10	61.63	48.69	6.69	2.20	**	335.99	
NPC REGION-W. TEX./P. N. MEX.										
	NEW PRIMARY	5	110.50		98.01	6.10	2.30	**	1402.00	103.00
	NEW SECONDARY	5	27.10		24.09	1.70	.60	**	30.00	
	OLD PRIMARY	5	748.80	421.50	536.66	43.73	16.17	**		
	OLD SECONDARY	5	307.80	119.95	152.73	15.48	5.69	**	586.97	
	OLD TERTIARY	5	333.10					**	1296.99	
NPC REGION-GULF COAST										
	NEW PRIMARY	5	276.80		312.37	19.49	6.17	**	2593.97	168.99
	NEW SECONDARY	5	4.60		5.20	.30	.10	**	5.00	
	OLD PRIMARY	5	716.90	423.04	418.17	56.28	17.78	**		
	OLD SECONDARY	5	910.60	515.49	509.48	64.20	20.22	**	1740.98	
	OLD TERTIARY	5	40.20					**	242.00	
NPC REGION-GULF OF MEXICO										
	NEW PRIMARY	5	268.10	304.16		7.48	4.58	**	1604.98	34.99
	NEW SECONDARY	5	9.60	11.22		.20	.10	**	9.00	
	OLD PRIMARY	5	236.70	263.64		8.50	5.18	**		
	OLD SECONDARY	5	50.40	56.40		1.70	1.10	**	113.00	

TABLE 3
(CONTINUED)
OIL SUPPLY CURVES FOR 1985

	PRICE STEP	CRUDE OIL (MBBL/D)	INTERSTATE GAS (MMCF/D)	INTRASTATE GAS (MMCF/D)	BUTANE (MBBL/D)	GAS LIQUIDS (MBBL/D)	BUNDLE PRICE (\$/BBL OIL)	CAPITAL (MM\$)	FOOTAGE DRILLED (MMFT)
NPC REGION-MIDCONTINENT									
NEW PRIMARY	5	125.50		202.32	2.70	1.69	**	2966.00	228.00
NEW SECONDARY	5	42.60		68.72	.90	.60	**	62.00	
OLD PRIMARY	5	213.10	205.39	188.30	3.39	2.09	**		
OLD SECONDARY	5	135.40	114.12	104.62	2.90	1.79	**	426.00	
OLD TERTIARY	5	27.00					**	128.00	
NPC REGION-MI. B. / INT. / APP.									
NEW PRIMARY	5	89.80		30.05			**	1014.00	88.99
NEW SECONDARY	5	14.30		6.30			**	14.00	
OLD PRIMARY	5	70.30	12.52	18.41			**		
OLD SECONDARY	5	65.50	11.19	16.46			**	121.00	
OLD TERTIARY	5	10.80					**	24.00	
NPC REGION-ATLANTIC COAST									
NEW PRIMARY	5	101.80		42.71	2.10		**	328.00	22.00
NEW SECONDARY	5	6.00		2.74	.10		**	5.00	
OLD PRIMARY	5	4.50	.09	1.00	.10		**		
NPC REGION-ATLANTIC OCEAN									
NEW PRIMARY	5	263.20	199.85		9.58		**	702.98	5.97
NEW SECONDARY	5	6.70	5.20		.20		**	56.00	
NPC REGION-NORTH SLOPE									
PRUDHOE BAY									
NEW PRIMARY	*	1600.00	2755.84				**	6976.00	6256.00
BEAUPORT SEA									
NEW PRIMARY	*	112.00	79.28				**	1072.96	779.52
NORTH SLOPE OTHER									
NEW PRIMARY	*	720.00	332.64				**	5745.60	5018.40

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TABLE 4
OIL SUPPLY CURVES FOR 1990

	PRICE STEP	CRUDE OIL (MGBL/D)	INTERSTATE GAS (MMCF/D)	INTRASTATE GAS (MMCF/D)	BUTANE (MGBL/D)	GAS LIQUIDS (MGBL/D)	BUNDLE PRICE (\$/BBL OIL)	CAPITAL (MM\$)	FOOTAGE DRILLED (MMFT)
NPC REGION-SOUTH ALASKA									
NEW PRIMARY	5	678.90	281.40				**	1969.96	9.98
NEW SECONDARY	5	41.10	16.97				**	272.00	
OLD PRIMARY	5	22.00	9.03				**		
OLD SECONDARY	5	9.80	4.11				**	91.00	
NPC REGION-PACIFIC COAST									
EXCLUDING ELK'S HILL									
NEW PRIMARY	5	262.50		92.24	2.18	1.08	**	5118.98	207.98
NEW SECONDARY	5	112.90		39.70	.89	.50	**	340.00	
OLD PRIMARY	5	204.30		89.24	2.08	.98	**		
OLD SECONDARY	5	36.50		12.87	.30	.10	**	147.00	
OLD TERTIARY	5	49.80					**	685.00	
ELK'S HILL									
NEW PRIMARY	*	150.00					**	630.00	
NPC REGION-PACIFIC OCEAN									
NEW PRIMARY	5	73.80	96.09		2.60	1.90	**	907.00	11.00
NEW SECONDARY	5	1.60	1.92		.10		**	11.00	
OLD PRIMARY	5	64.60	93.63		3.03	2.20	**		
OLD SECONDARY	5	50.30	67.35		1.93	1.40	**	330.00	
NPC REGION-WEST ROCKIES									
NEW PRIMARY	5	126.80		116.35	3.09	2.30	**	2224.00	99.99
NEW SECONDARY	5	34.70		31.48	.80	.60	**	91.00	
OLD PRIMARY	5	17.20	12.02	5.49	.60	.40	**		
OLD SECONDARY	5	79.10	51.07	23.31	1.99	1.49	**	273.00	

VINTAGE (OLD, NEW) INDICATES WHETHER OIL WELLS DRILLED BEFORE OR AFTER 1/1/77 (NOTE DIFFERENCE FROM LEGAL DEFINITION OF OIL VINTAGE).

A * IN THE PRICE STEP COLUMN INDICATES DATA FOR THAT REGION ARE ENGINEERING ESTIMATES.

BUNDLE PRICE = (TOTAL VALUE OF ALL PRODUCTS IN INCREMENT OVER PREVIOUS PRICE STEP)/(QUANTITY OF OIL IN THAT INCREMENT).

A ** IN BUNDLE PRICE COLUMN INDICATES BUNDLE PRICE NOT CALCULATED FOR OIL REGULATION SCENARIOS WITH POINT ESTIMATES OF SUPPLY.

CAPITAL INVESTMENT AND DRILLING STATISTICS ARE CUMULATIVE FROM 1977 TO 1989.

TABLE 4
(CONTINUED)
OIL SUPPLY CURVES FOR 1990

	PRICE STEP	CRUDE OIL (MBBL/D)	INTERSTATE GAS (MMCF/D)	INTRASTATE GAS (MMCF/D)	BUTANE (MBBL/D)	GAS LIQUIDS (MBBL/D)	BUNDLE PRICE (\$/BBL OIL)	CAPITAL (MM\$)	FOOTAGE DRILLED (MMFT)
NPC REGION-EAST ROCKIES									
NEW PRIMARY	5	167.60		112.79	6.89	2.30	**	1965.00	143.99
NEW SECONDARY	5	38.10		26.28	1.60	.50	**	101.00	
OLD PRIMARY	5	73.60	22.48	17.76	2.10	.70	**		
OLD SECONDARY	5	146.50	52.61	41.56	5.70	1.89	**	511.99	
NPC REGION-W. TEX./E. N. MEX.									
NEW PRIMARY	5	141.80		125.66	7.90	2.89	**	2368.00	173.00
NEW SECONDARY	5	55.00		48.73	3.10	1.20	**	123.00	
OLD PRIMARY	5	390.90	319.76	407.12	37.37	13.80	**		
OLD SECONDARY	5	181.50	70.69	90.01	9.29	3.48	**	650.99	
OLD TERTIARY	5	429.70					**	2396.00	
NPC REGION-GULF COAST									
NEW PRIMARY	5	343.30		392.87	24.68	7.79	**	4382.02	285.97
NEW SECONDARY	5	8.90		10.40	.60	.20	**	17.00	
OLD PRIMARY	5	359.60	235.43	232.70	31.07	9.89	**		
OLD SECONDARY	5	765.40	437.66	432.60	54.57	17.30	**	2702.93	
OLD TERTIARY	5	60.20					**	745.00	
NPC REGION-GULF OF MEXICO									
NEW PRIMARY	5	354.60	411.76		8.69	5.28	**	2526.98	52.98
NEW SECONDARY	5	15.60	18.62		.40	.20	**	45.00	
OLD PRIMARY	5	102.70	114.44		3.70	2.29	**		
OLD SECONDARY	5	21.90	24.37		.70	.50	**	113.00	

TABLE 4
(CONTINUED)
OIL SUPPLY CURVES FOR 1990

		PRICE CRUDE OIL STEP	INTERSTATE GAS (MMBBL/D)	INTRASTATE GAS (MMCF/D)	BUTANE (MMBBL/D)	GAS LIQUIDS (MMBBL/D)	BUNDLE PRICE (\$/DBL OIL)	CAPITAL (MM\$)	FOOTAGE DRILLED (MMPT)	
NPC REGION-MIDCONTINENT										
	NEW PRIMARY	5	157.00		248.59	3.30	1.99	**	5057.00	383.99
	NEW SECONDARY	5	46.40		73.65	1.00	.60	**	91.00	
	OLD PRIMARY	5	106.90	155.68	142.73	2.99	1.89	**		
	OLD SECONDARY	5	114.00	94.97	87.07	2.39	1.49	**	542.99	
	OLD TERTIARY	5	78.00					**	383.00	
NPC REGION-MI. D. / INT. / APP.										
	NEW PRIMARY	5	110.50		51.47			**	1730.00	151.00
	NEW SECONDARY	5	27.60		13.14			**	65.00	
	OLD PRIMARY	5	32.50	6.87	10.10			**		
	OLD SECONDARY	5	67.30	12.52	18.41			**	229.00	
	OLD TERTIARY	5	10.50					**	32.00	
NPC REGION-ATLANTIC COAST										
	NEW PRIMARY	5	109.60		60.50	2.89		**	520.00	35.99
	NEW SECONDARY	5	10.20		6.02	.30		**	13.00	
	OLD PRIMARY	5	1.70	.05	.50			**		
NPC REGION-ATLANTIC OCEAN										
	NEW PRIMARY	5	315.30	219.53		11.48		**	1366.97	10.00
	NEW SECONDARY	5	13.00	10.40		.50		**	122.00	
NPC REGION-NORTH SLOPE										
	PRUDHOE BAY									
	NEW PRIMARY	*	1021.00	2206.58				**	7117.39	6258.73
	DEANPORT SEA									
	NEW PRIMARY	*	619.00	723.67				**	5274.37	4326.81
	NORTH SLOPE OTHER									
	NEW PRIMARY	*	573.00	323.23				**	6910.38	6898.92
NAVAL PETROLEUM RESERVE A										
	NEW PRIMARY	*	685.00					**		

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.
CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT TO THE PIES OIL AND GAS MODEL.
FOOTAGE DRILLED DATA FROM SECTION 1, DRILLING COSTS OF THE U.S. OIL AND GAS PRODUCING INDUSTRIES PUBLISHED IN THE JOINT ASSOCIATION AMERICAN PETROLEUM COUNCIL, THE AMERICAN GAS ASSOCIATION, AND VARIOUS OTHER ENERGY RELATED INDUSTRIES. THE DATA IS INPUT TO THE PIES OIL AND GAS MODEL AND THE
ABOVE FIGURES ARE CALCULATED THERE. OTHER SOURCES INCLUDE "QUARTERLY REVIEW OF DRILLING STATISTICS", AMERICAN PETROLEUM INSTITUTE, WASHINGTON, D.C. FOR INITIAL EXPLORATORY FOOTAGE AND "U.S. ENERGY OUTLOOK- OIL AND GAS AVAILABILITY", WASHINGTON, D.C., 1971.

TABLE 5
PRICE TRAJECTORIES FOR NONASSOCIATED GAS
(\$/MCF)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
STEP 1	1.63	1.61	1.58	1.56	1.53	1.51	1.49	1.47	1.44	1.44	1.44	1.44	1.44	1.44	1.44
STEP 2	1.63	1.61	1.60	1.58	1.57	1.55	1.53	1.52	1.50	1.50	1.50	1.50	1.50	1.50	1.50
STEP 3	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63
STEP 4	1.63	1.65	1.66	1.68	1.70	1.71	1.73	1.75	1.76	1.76	1.76	1.76	1.75	1.76	1.76
STEP 5	1.63	1.66	1.70	1.73	1.76	1.80	1.84	1.87	1.91	1.91	1.91	1.91	1.91	1.91	1.91
STEP 6	1.63	1.68	1.73	1.78	1.83	1.89	1.95	2.00	2.06	2.06	2.06	2.06	2.05	2.06	2.06
STEP 7	1.63	1.69	1.76	1.83	1.91	1.98	2.06	2.14	2.23	2.23	2.23	2.23	2.23	2.23	2.23
STEP 8	1.63	1.71	1.80	1.89	1.98	2.08	2.18	2.29	2.41	2.41	2.41	2.41	2.41	2.41	2.41
STEP 9	1.63	1.74	1.87	2.00	2.14	2.29	2.45	2.62	2.80	2.80	2.80	2.80	2.80	2.80	2.80

DATA SOURCES : OUTPUT FROM THE PIES OIL & GAS SUPPLY MODEL DERIVED FROM
AVERAGE REFERENCE ACQUISITION COSTS, TRANSPORTATION COSTS,
AND OTHER RELEVANT COSTS AND PRICES. ALSO PLATT'S OILGRAM, WASHINGTON, D.C
A WEEKLY PUBLICATION.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY
SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 6
PRICE TRAJECTORIES FOR NATURAL GAS LIQUIDS
(\$/BDL)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
STEP 1	9.48	9.33	9.19	9.06	8.92	8.79	8.66	8.53	8.40	8.40	8.40	8.40	8.40	8.40	8.40
STEP 2	9.48	9.38	9.29	9.20	9.10	9.01	8.92	8.83	8.74	8.74	8.74	8.74	8.74	8.74	8.74
STEP 3	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48	9.48
STEP 4	9.48	9.57	9.67	9.76	9.86	9.96	10.06	10.16	10.26	10.26	10.26	10.26	10.25	10.26	10.26
STEP 5	9.48	9.67	9.86	10.06	10.26	10.46	10.67	10.89	11.10	11.10	11.10	11.10	11.10	11.10	11.10
STEP 6	9.48	9.76	10.05	10.36	10.67	10.99	11.32	11.66	12.00	12.00	12.00	12.00	12.00	12.00	12.00
STEP 7	9.48	9.96	10.25	10.66	11.09	11.53	11.99	12.47	12.97	12.97	12.97	12.97	12.97	12.97	12.97
STEP 8	9.48	9.95	10.45	10.97	11.52	12.09	12.70	13.33	14.00	14.00	14.00	14.00	14.00	14.00	14.00
STEP 9	9.48	10.14	10.85	11.61	12.42	13.29	14.22	15.22	16.28	16.28	16.28	16.28	16.23	16.28	16.28

DATA SOURCES : OUTPUT FROM THE PIES OIL & GAS SUPPLY MODEL DERIVED FROM
AVERAGE REFERENCE ACQUISITION COSTS, TRANSPORTATION COSTS,
AND OTHER RELEVANT COSTS AND PRICES. ALSO PLATT'S OILGRAM, WASHINGTON, D.C
A WEEKLY PUBLICATION.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY
SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 7
GAS SUPPLY CURVES FOR 1985

	PRICE STEP	NATURAL GAS (MMCF/D)	BUTANE (MMBL/D)	GAS LIQUIDS (MMBL/D)	BUNDLE PRICE (\$/MCF GAS)	CAPITAL (MM\$)	DRILLING (MMFT)
NPC REGION-SOUTH ALASKA INTERSTATE GAS							
NEW GAS	1	122.10			1.44	142.98	.99
	2	160.98			1.50	192.98	.99
	3	229.42			1.63	289.97	.99
	4	370.14			1.76	488.96	1.99
	5	433.94			1.91	587.96	2.98
	6	626.68			2.06	881.95	3.97
	8	629.41			2.41	883.95	3.97
OLD GAS	1	262.83			1.44		
NPC REGION-PACIFIC OCEAN INTERSTATE GAS							
NEW GAS	1	55.30	.50	.70	1.63	30.00	
	4	56.67	.50	.70	1.76	31.00	
	5	57.22	.60	.70	3.94	31.00	
	8	58.32	.60	.70	2.41	31.00	
	9	59.41	.60	.70	2.80	31.00	
OLD GAS	6	15.61			2.06		
NPC REGION-WEST ROCKIES INTERSTATE GAS							
OLD GAS	1	663.31	1.06	.66	1.47		
NPC REGION-EAST ROCKIES INTERSTATE GAS							
OLD GAS	1	243.60	3.73	2.53	1.66		
NPC REGION-W. TEX./E. N. MEX. INTERSTATE GAS							
OLD GAS	1	332.64			1.44		

VINTAGE (OLD, NEW) INDICATES WHETHER GAS WELLS DRILLED BEFORE OR AFTER 1/1/77 (NOTE DIFFERENCE FROM LEGAL DEFINITION OF GAS VINTAGE).

ALL QUANTITIES (PRODUCTION, INVESTMENT AND DRILLING) ARE CUMULATIVE OVER PRICE STEPS.

PRICE STEPS WITH NO ADDITIONAL PRODUCTION OVER PREVIOUS STEP ARE OMITTED.

BUNDLE PRICE = (TOTAL VALUE OF ALL PRODUCTS IN INCREMENT OVER PREVIOUS PRICE STEP)/(QUANTITY OF NATURAL GAS IN THAT INCREMENT).

CAPITAL INVESTMENT AND DRILLING STATISTICS ARE CUMULATIVE FROM 1977 TO 1984.

TABLE 7
(CONTINUED)
GAS SUPPLY CURVES FOR 1985

	PRICE STEP	NATURAL GAS (MMCF/D)	BUTANE (MMBL/D)	GAS LIQUIDS (MMBL/D)	BUNDLE PRICE (\$/MCF GAS)	CAPITAL (MM\$)	DRILLING (MMFC)
NPC REGION-GULF COAST INTERSTATE GAS							
	OLD GAS 1	2498.20	49.21	38.97	1.74		
NPC REGION-GULF OF MEXICO INTERSTATE GAS							
	NEW GAS 1	2442.90	15.88	20.03	1.57	1550.75	25.89
	2	2445.91	15.88	20.13	1.79	1551.75	25.89
	5	2567.74	16.67	21.13	2.07	1551.75	25.89
	7	2568.84	16.67	21.13	2.23	1551.75	25.89
	OLD GAS 1	3639.70	37.85	29.85	1.60		
NPC REGION-MIDCONTINENT INTERSTATE GAS							
	OLD GAS 1	1513.00	15.43	10.14	1.59		
NPC REGION-MI. BASIN AND INT. INTERSTATE GAS							
	OLD GAS 1	.15	.00		1.46		
NPC REGION-APPALACHIA INTERSTATE GAS							
	OLD GAS 1	317.11	6.06	3.33	1.69		
NPC REGION-ATLANTIC OCEAN INTERSTATE GAS							
	NEW GAS 1	395.34	7.59	3.08	1.67	221.98	1.98
	3	402.46	7.69	3.18	1.90	233.98	1.98
	8	419.71	7.99	3.28	2.73	252.98	1.98
DOE REGION-N.Y./N.J. INTRASTATE GAS							
	OLD GAS 1	2.13	.04	.02	1.69		

TABLE 7
(CONTINUED)
GAS SUPPLY CURVES FOR 1985

	PRICE STEP	NATURAL GAS (MMCF/D)	BUTANE (MMBL/D)	GAS LIQUIDS (MMBL/D)	WINDLE PRICE (\$/MCF GAS)	CAPITAL (M\$)	DRILLING (MMPT)
DOE REGION-MID-ATLANTIC INTRASTATE GAS							
OLD GAS	1	123.98	2.37	1.30	1.69		
DOE REGION-SOUTH ATLANTIC INTRASTATE GAS							
NEW GAS	1	101.16	1.23	1.58	1.68	71.06	3.14
	2	108.15	1.32	1.69	1.75	76.70	3.37
	3	118.19	1.44	1.84	1.89	85.29	3.73
	4	130.11	1.59	2.03	2.05	95.99	4.19
	5	132.07	1.61	2.05	2.22	97.85	4.24
	6	134.22	1.64	2.09	2.39	100.36	4.33
	7	136.46	1.67	2.13	2.59	102.38	4.42
	8	139.48	1.70	2.17	2.81	105.55	4.53
	9	141.07	1.72	2.20	3.26	107.78	4.60
OLD GAS	1	73.46	1.43	.99	1.72		
DOE REGION-MEDWEST INTRASTATE GAS							
OLD GAS	1	92.84	.84	.41	1.56		
DOE REGION-SOUTHWEST INTRASTATE GAS							
NEW GAS	1	15022.00	198.29	204.30	1.67	10905.97	491.22
	2	15820.28	208.35	215.40	1.74	11570.35	520.28
	3	17024.78	223.65	231.66	1.88	12629.41	565.45
	4	18340.18	240.22	250.20	2.04	13845.23	619.25
	5	18605.20	243.27	253.38	2.17	14091.13	628.87
	6	18769.77	245.34	255.93	2.40	14257.90	634.77
	7	18998.17	248.04	258.83	2.55	14489.70	643.91
	8	19391.28	251.85	263.43	2.71	14907.26	660.89
	9	19845.21	256.03	267.56	3.10	15440.50	685.00
OLD GAS	1	5303.40	71.60	54.63	1.64		

TABLE 7
(CONTINUED)
GAS SUPPLY CURVES FOR 1985

	PRICE STEP	NATURAL GAS (MMCF/D)	BUTANE (MMBBL/D)	GAS LIQUIDS (MMBBL/D)	BUNDLE PRICE (\$/MCF GAS)	CAPITAL (MMS)	DRILLING (MMPT)
DOE REGION-CENTRAL INTRASTATE GAS							
NEW GAS	1	823.67	9.47	8.32	1.63	609.93	30.81
	2	863.01	9.89	8.69	1.68	644.16	32.50
	3	921.21	10.48	9.20	1.81	696.38	34.94
	4	975.95	11.03	9.69	1.96	749.49	37.57
	5	1007.11	11.34	9.97	2.12	777.71	38.89
	7	1024.51	11.51	10.12	2.47	795.57	39.64
	8	1038.32	11.61	10.21	2.60	810.25	40.20
	9	1076.58	11.94	10.51	3.07	850.69	41.90
OLD GAS	1	335.85	3.43	2.25	1.59		
DOE REGION-NORTH CENTRAL INTRASTATE GAS							
NEW GAS	4	290.21	3.19	2.99	1.98	330.38	15.99
	5	365.50	4.09	3.79	2.16	421.98	19.99
	6	453.93	5.09	4.68	2.32	529.97	24.98
	7	548.94	6.09	5.68	2.50	649.97	30.98
	8	697.51	7.60	7.09	2.68	844.51	40.31
	9	892.82	9.53	8.81	3.11	1113.55	53.40
OLD GAS	1	308.25	3.95	2.68	1.63		
DOE REGION-WEST INTRASTATE GAS							
NEW GAS	2	86.24	.70	1.10	1.69	116.00	4.99
	3	197.67	1.69	2.49	1.83	212.98	8.98
	4	299.24	2.58	3.69	1.98	330.98	13.98
	5	326.07	2.78	4.09	2.16	363.98	14.98
	6	353.45	2.98	4.49	2.33	396.98	15.98
	7	392.33	3.28	4.88	2.46	444.97	17.98
	8	441.88	3.78	5.48	2.72	508.97	20.97
	9	515.53	4.37	6.38	3.13	606.97	24.97
OLD GAS	1	208.62			1.44		

TABLE A
GAS SUPPLY CURVES FOR 1990

PRICE STEP		NATURAL GAS (MMCF/D)	BUTANE (MMBBL/D)	GAS LIQUIDS (MMBBL/D)	BUNDLE PRICE (\$/MMCF GAS)	CAPITAL (MM\$)	DRILLING (MMPT)
NPC REGION-SOUTH ALASKA INTERSTATE GAS							
NEW GAS	2	196.57			1.50	69.00	
	3	473.91			1.63	254.98	1.00
	4	777.81			1.76	555.96	1.97
	5	922.91			1.91	724.95	2.96
	6	1315.24			2.06	1188.91	4.92
	8	1317.43			2.41	1191.91	4.92
OLD GAS	1	233.53			1.44		
NPC REGION-PACIFIC OCEAN INTERSTATE GAS							
NEW GAS	1	134.97	1.19	1.69	1.62	59.00	1.00
	4	136.34	1.19	1.69	1.76	59.00	1.00
	5	139.62	1.19	1.79	2.25	60.00	1.00
	8	140.99	1.19	1.79	2.41	60.00	1.00
OLD GAS	5	9.86			1.91		
NPC REGION-WEST ROCKIES INTERSTATE GAS							
OLD GAS	1	459.25	.73	.46	1.47		
NPC REGION-EAST ROCKIES INTERSTATE GAS							
OLD GAS	1	160.47			1.44		
NPC REGION-W. TEX./E. N. MEX. INTERSTATE GAS							
OLD GAS	1	125.84			1.44		

VINTAGE (OLD, NEW) INDICATES WHETHER GAS WELLS DRILLED BEFORE OR AFTER 1/1/77 (NOTE DIFFERENCE FROM LEGAL DEFINITION OF GAS VINTAGE).

ALL QUANTITIES (PRODUCTION, INVESTMENT AND DRILLING) ARE CUMULATIVE OVER PRICE STEPS.

PRICE STEPS WITH NO ADDITIONAL PRODUCTION OVER PREVIOUS STEP ARE OMITTED.

BUNDLE PRICE = (TOTAL VALUE OF ALL PRODUCTS IN INCREMENT OVER PREVIOUS PRICE STEP)/(QUANTITY OF NATURAL GAS IN THAT INCREMENT).

CAPITAL INVESTMENT AND DRILLING STATISTICS ARE CUMULATIVE FROM 1977 TO 1989.

TABLE 8
(CONTINUED)
GAS SUPPLY CURVES FOR 1990

	PRICE STEP	NATURAL GAS (MMCF/D)	BUTANE (MMBL/D)	GAS LIQUIDS (MMBL/D)	BUNDLE PRICE (\$/MCF GAS)	CAPITAL (MM\$)	DRILLING (MMFT)
NPC REGION-GULF COAST INTERSTATE GAS							
OLD GAS	1	1278.10	25.18	19.94	1.74		
NPC REGION-GULF OF MEXICO INTERSTATE GAS							
NEW GAS	1	3861.10	25.10	31.66	1.57	2401.60	39.00
	2	3864.39	25.10	31.66	1.50	2404.60	39.00
	9	3864.66	25.20	31.66	8.74	2404.60	39.00
OLD GAS	1	1946.80	20.25	15.96	1.60		
NPC REGION-MIDCONTINENT INTERSTATE GAS							
OLD GAS	1	809.27	8.25	5.42	1.59		
NPC REGION-MI. BASIN AND INT. INTERSTATE GAS							
OLD GAS	1	.06			1.44		
NPC REGION-APPALACHIA INTERSTATE GAS							
OLD GAS	2	196.22	3.77	2.10	1.77		
NPC REGION-ATLANTIC OCEAN INTERSTATE GAS							
NEW GAS	1	504.58	6.86	2.78	1.61	242.00	1.97
	2	540.99	6.86	2.78	1.50	244.00	1.97
	3	569.19	7.06	2.78	1.70	278.99	1.97
	4	570.01	7.06	2.78	1.76	303.99	1.97
	8	605.33	7.36	2.97	2.61	354.99	2.97
DOE REGION-N.Y./N.J. INTRASTATE GAS							
OLD GAS	2	1.32	.03	.01	1.77		

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TABLE 8
(CONTINUED)
GAS SUPPLY CURVES FOR 1990

PRICE STEP		NATURAL GAS (MMCF/D)	BUTANE (MMBL/D)	GAS LIQUIDS (MMBL/D)	BUNDLE PRICE (\$/MCF GAS)	CAPITAL (MM\$)	DRILLING (MMF T)
-----		-----	-----	-----	-----	-----	-----
DOE REGION-MID-ATLANTIC INTRASTATE GAS							
OLD GAS	2	76.72	1.47	.82	1.77		
DOE REGION-SOUTH ATLANTIC INTRASTATE GAS							
NEW GAS	1	83.31	1.02	1.30	1.68	88.96	3.90
	2	96.78	1.18	1.51	1.75	98.18	4.30
	3	117.72	1.44	1.83	1.90	116.09	5.04
	4	134.78	1.65	2.10	2.05	136.68	5.88
	5	141.48	1.73	2.20	2.22	144.36	6.19
	6	147.53	1.80	2.30	2.40	151.90	6.49
	7	155.32	1.90	2.42	2.59	161.49	6.86
	8	167.19	2.05	2.60	2.80	177.06	7.43
	9	179.80	2.20	2.80	3.26	194.32	8.07
OLD GAS	1	21.98	.43	.34	1.74		
	2	40.85	.80	.54	1.77		
DOE REGION-MIDWEST INTRASTATE GAS							
OLD GAS	1	22.11			1.44		
	2	46.28	.46	.26	1.77		
DOE REGION-SOUTHWEST INTRASTATE GAS							
NEW GAS	1	11604.00	149.69	156.65	1.67	13464.11	605.73
	2	13778.00	176.43	184.05	1.72	14747.42	663.12
	3	16263.50	208.00	218.10	1.88	17095.96	765.28
	4	18232.30	232.21	244.68	2.03	19582.55	871.79
	5	19108.07	242.64	255.89	2.18	20598.52	915.66
	6	19760.11	250.59	264.82	2.38	21379.25	947.42
	7	20693.61	261.70	276.95	2.56	22550.79	995.77
	8	22245.71	279.39	296.20	2.74	24635.26	1082.38
	9	24130.91	300.32	318.26	3.17	27376.53	1200.02
OLD GAS	1	2687.80	37.09	28.22	1.65		

TABLE 8
(CONTINUED)
GAS SUPPLY CURVES FOR 1990

	PRICE STEP	NATURAL GAS (MMCF/D)	BUTANE (MMBL/D)	GAS LIQUIDS (MMBL/D)	BUNDLE PRICE (\$/MCF GAS)	CAPITAL (MM\$)	DRILLING (MMFT)
DOE REGION-CENTRAL INTRASTATE GAS							
NEW GAS	1	635.03	6.73	5.91	1.61	760.83	38.36
	2	765.11	7.77	6.82	1.64	821.20	41.36
	3	859.87	8.60	7.55	1.79	942.52	47.38
	4	950.09	9.36	8.22	1.93	1060.26	53.02
	5	1004.16	9.85	8.65	2.08	1139.45	56.77
	6	1030.59	9.98	8.77	2.20	1159.20	57.71
	7	1082.86	10.39	9.14	2.43	1231.05	60.91
	8	1155.88	10.95	9.62	2.61	1331.68	65.42
	9	1263.61	11.79	10.36	3.04	1501.71	73.12
OLD GAS	1	179.63	1.83	1.20	1.59		
DOE REGION-NORTH CENTRAL INTRASTATE GAS							
NEW GAS	4	335.66	3.79	3.49	1.99	466.00	21.99
	5	437.50	4.89	4.49	2.14	613.98	28.98
	6	556.32	6.19	5.78	2.33	792.97	37.98
	7	693.48	7.78	7.18	2.51	1007.95	47.98
	8	925.23	10.10	9.32	2.68	1385.31	66.26
	9	1240.20	13.21	12.31	3.12	1953.15	94.07
OLD GAS	1	204.91	.06	.02	1.45		
DOE REGION-WEST INTRASTATE GAS							
NEW GAS	2	7.12	.10		1.63	116.30	5.00
	3	209.17	1.80	2.59	1.83	287.98	11.99
	4	330.73	2.79	4.08	1.98	466.98	18.98
	5	373.71	3.19	4.68	2.17	529.98	21.98
	6	416.97	3.59	5.18	2.31	594.98	23.99
	7	477.75	4.09	5.97	2.51	690.97	27.97
	8	567.55	4.78	7.07	2.69	836.97	33.97
	9	698.41	5.97	8.76	3.16	1067.95	43.97
OLD GAS	1	129.22			1.44		

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.
CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT TO THE PIES OIL AND GAS MODEL.
FOOTAGE DRILLED DATA FROM SECTION 1, DRILLING COSTS OF THE U.S. OIL AND GAS PRODUCING INDUSTRIES PUBLISHED IN THE JOINT ASSOCIATION AMERICAN PETROLEUM COUNCIL, THE AMERICAN GAS ASSOCIATION, AND VARIOUS OTHER ENERGY RELATED INDUSTRIES. THE DATA IS INPUT TO THE PIES OIL AND GAS MODEL AND THE ABOVE FIGURES ARE CALCULATED THERE. OTHER SOURCES INCLUDE "QUARTERLY REVIEW

OF DRILLING STATISTICS", AMERICAN PETROLEUM INSTITUTE, WASHINGTON, D.C.
FOR INITIAL EXPLORATORY FOOTAGE AND "U.S. ENERGY OUTLOOK-OIL AND GAS AVAILABILITY", WASHINGTON, D.C., 1973.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 9
DISTRIBUTION OF INTERSTATE GAS IN 1985
(MMCF/D)

NPC REGION	DOE REGION								
	NEW ENG. NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL	WEST	N.-WEST
PACIFIC COAST									
PACIFIC OCEAN								352	
WEST ROCKIES					27		174	520	40
EAST ROCKIES				27		44	267	6	8
W. TEX./E. N. MEX.			18	131	142	126	9	445	
GULF COAST	106	343	460	852	1044	536	93		
GULF OF MEXICO	251	807	1074	1464	2586	609	48		
MIDCONTINENT		22	31	37	743	225	624	109	38
MI. BASIN AND INT.				12					
APPALACHIA		88	118	23	99				
ATLANTIC COAST									
ATLANTIC OCEAN	49	174	221	162					
NORTH SLOPE	37	119	158	249	721	134	114	22	606
SOUTH ALASKA									42
								827	

QUANTITIES GIVEN DO NOT SHOW EFFECT OF TRANSPORTATION LOSSES.

STATED DISTRIBUTION OF NORTH SLOPE GAS TO THE EAST COAST REPRESENTS NET EFFECT OF DISPLACEMENT.

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 10
INTERSTATE GAS DELIVERIES IN 1985

	DOE REGION									
	NEW ENG. NY/NJ		MID-ATL. S.-ATL.		MIDWEST	S.-WEST	CENTRAL	N.-CNTRL WEST		N.-WEST
LOWER 48 AND S. ALASKA										
QUANTITY DELIVERED (MMCF/D)	380	1352	1813	2486	4445	1509	918	518	2039	45
AVERAGE PRICE (\$/MCF)	1.58	1.43	1.34	1.11	1.15	.85	.68	.65	1.38	1.05
ALASKAN NORTH SLOPE										
QUANTITY DELIVERED (MMCF/D)	34	108	145	235	667	129	107	21	577	40
DELIVERED PRICE (\$/MCF)	3.05	3.01	2.94	2.76	2.89	2.61	2.81	2.69	2.68	2.52

STATED DISTRIBUTION OF NORTH SLOPE GAS TO THE EAST COAST REPRESENTS NET EFFECT OF DISPLACEMENT.

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, RTA.

TABLE 11
DISTRIBUTION OF INTERSTATE GAS IN 1990
(MMCF/D)

NPC REGION	DOE REGION									
	NEW ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL.	WEST	N.-WEST
PACIFIC COAST										
PACIFIC OCEAN									408	
WEST ROCKIES						19		119	356	28
EAST ROCKIES					18		30	178	4	5
W. TEX./E. N. MEX.				11	78	84	75	5	263	
GULF COAST	60	195	261	483	593	304	53			
GULF OF MEXICO	236	752	1001	1365	2411	567	45			
MIDCONTINENT		13	18	21	430	130	361	64	22	
MI. BASIN AND INT.					10					
APPALACHIA		55	74	14	62					
ATLANTIC COAST										
ATLANTIC OCEAN	66	235	298	219						
NORTH SLOPE	41	131	174	274	793	147	126	24	667	46
SOUTH ALASKA									1467	

QUANTITIES GIVEN DO NOT SHOW EFFECT OF TRANSPORTATION LOSSES.

STATED DISTRIBUTION OF NORTH SLOPE GAS TO THE EAST COAST REPRESENTS NET EFFECT OF DISPLACEMENT.

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 12
INTERSTATE GAS DELIVERIES IN 1990

	DOE REGION									
	NEW ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL	WEST	N.-WEST
LOWER 48 AND S. ALASKA										
QUANTITY DELIVERED (MMCF/D)	339	1183	1579	2060	3450	1083	551	359	2325	31
AVERAGE PRICE (\$/MCF)	1.80	1.65	1.56	1.35	1.38	1.04	.73	.55	1.60	1.05
ALASKAN NORTH SLOPE										
QUANTITY DELIVERED (MMCF/D)	37	118	159	258	733	142	117	23	635	44
DELIVERED PRICE (\$/MCF)	2.58	2.54	2.48	2.31	2.44	2.18	2.46	2.35	2.33	2.18

STATED DISTRIBUTION OF NORTH SLOPE GAS TO THE EAST COAST REPRESENTS NET EFFECT OF DISPLACEMENT.
DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIRS OIL AND GAS MODEL
WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL
GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974",
AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY
SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 13
OIL WELL DRILLING, INVESTMENT AND PRODUCTION
SUMMARY FOR 1985

NPC REGION	CRUDE OIL	INTERSTATE GAS	INTRASTATE GAS	CAPITAL	DRILLING
	(MMBBL/D)	(MMCF/D)	(MMCF/D)	1977-1984 (MM\$)	1977-1984 (MMPT)
SOUTH ALASKA	316	131		1404	6
PACIFIC COAST	831			4150	124
PACIFIC OCEAN	209	295		703	6
WEST ROCKIES	272	100		1497	59
EAST ROCKIES	492	109		1466	85
W. TEX./E. N. MEX.	1527	541		3316	103
GULF COAST	1949	939		4582	169
GULF OF MEXICO	565	635		1727	35
MIDCONTINENT	544	320		3582	228
MI. B./ INT./ APP.	251	24		1173	89
ATLANTIC COAST	112			333	22
ATLANTIC OCEAN	270	205		759	6
NORTH SLOPE	2432	3168		13795	12054
DOE REGION					
NEW ENGLAND					
N.Y./N.J.			1		
MID-ATLANTIC			44		
SOUTH ATLANTIC			59		
MIDWEST			25		
SOUTHWEST			2635		
CENTRAL			137		
NORTH CENTRAL			213		
WEST			231		
NORTHWEST					
NATIONAL TOTAL	9769	6468	3321	38487	12986

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT TO THE PIES OIL AND GAS MODEL. FOOTAGE DRILLED DATA FROM SECTION 1, DRILLING COSTS OF THE U.S. OIL AND GAS PRODUCING INDUSTRIES PUBLISHED IN THE JOINT ASSOCIATION AMERICAN PETROLEUM COUNCIL, THE AMERICAN GAS ASSOCIATION, AND VARIOUS OTHER ENERGY RELATED INDUSTRIES. THE DATA IS INPUT TO THE PIES OIL AND GAS MODEL AND THE ABOVE FIGURES ARE CALCULATED THERE. OTHER SOURCES INCLUDE "QUARTERLY REVIEW OF DRILLING STATISTICS", AMERICAN PETROLEUM INSTITUTE, WASHINGTON, D.C. FOR INITIAL EXPLORATORY FOOTAGE AND "U.S. ENERGY OUTLOOK- OIL AND GAS AVAILABILITY", WASHINGTON, D.C., 1973.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY
SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 14
OIL WELL DRILLING, INVESTMENT AND PRODUCTION
SUMMARY FOR 1990

NPC REGION	CRUDE OIL	INTERSTATE GAS	INTRASTATE GAS	CAPITAL	DRILLING
	(MMBL/D)	(MMCF/D)	(MMCF/D)	1977-1989 (MM\$)	1977-1989 (MMPT)
SOUTH ALASKA	752	312		2333	10
PACIFIC COAST	816			6921	208
PACIFIC OCEAN	190	259		1248	11
WEST ROCKIES	258	63		2588	100
EAST ROCKIES	426	75		2478	144
W. TEX./E. N. MEX.	1199	390		6138	173
GULF COAST	1537	673		7847	286
GULF OF MEXICO	495	569		2685	53
MIDCONTINENT	502	251		6076	384
MT. B./INT./APP.	248	19		2055	151
ATLANTIC COAST	121			533	36
ATLANTIC OCEAN	329	250		1189	10
NORTH SLOPE	2898	3253		19302	17484
DOE REGION					
NEW ENGLAND					
N.Y./N.J.			1		
MID-ATLANTIC			51		
SOUTH ATLANTIC			90		
MIDWEST			29		
SOUTHWEST			2320		
CENTRAL			105		
NORTH CENTRAL			232		
WEST			234		
NORTHWEST					

NATIONAL TOTAL 9772 6115 3061 61393 19050

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT TO THE PIES OIL AND GAS MODEL. FOOTAGE DRILLED DATA FROM SECTION 1, DRILLING COSTS OF THE U.S. OIL AND GAS PRODUCING INDUSTRIES PUBLISHED IN THE JOINT ASSOCIATION AMERICAN PETROLEUM COUNCIL, THE AMERICAN GAS ASSOCIATION, AND VARIOUS OTHER ENERGY RELATED INDUSTRIES. THE DATA IS INPUT TO THE PIES OIL AND GAS MODEL AND THE ABOVE FIGURES ARE CALCULATED THERE. OTHER SOURCES INCLUDE "QUARTERLY REVIEW OF DRILLING STATISTICS", AMERICAN PETROLEUM INSTITUTE, WASHINGTON, D.C. FOR INITIAL EXPLORATORY FOOTAGE AND "U.S. ENERGY OUTLOOK- OIL AND GAS AVAILABILITY", WASHINGTON, D.C., 1973.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 15
NON-ASSOCIATED INTERSTATE GAS
PRODUCTION SUMMARY
IN 1985
(MMCF/D)

NPC REGION	PRICE STEP								
	1	2	3	4	5	6	7	8	9
SOUTH ALASKA	385	424	492	633	697	890	890	892	892
PACIFIC OCEAN	55	55	55	57	57	73	73	74	75
WEST ROCKIES	663	663	663	663	663	663	663	663	663
EAST ROCKIES	244	244	244	244	244	244	244	244	244
W. TEX./E. N. MEX.	333	333	333	333	333	333	333	333	333
GULF COAST	2498	2498	2498	2498	2498	2498	2498	2498	2498
GULF OF MEXICO	6083	6086	6086	6086	6207	6207	6209	6209	6209
MIDCONTINENT	1513	1513	1513	1513	1513	1513	1513	1513	1513
MI. BASIN AND INT.									
APPALACHIA	317	317	317	317	317	317	317	317	317
ATLANTIC OCEAN	395	395	402	402	402	402	402	420	420
NATIONAL TOTAL	12486	12528	12604	12746	12932	13140	13141	13162	13164

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 16
NON-ASSOCIATED INTERSTATE GAS
PRODUCTION SUMMARY
IN 1990
(MMCP/D)

NPC REGION	PRICE STEP								
	1	2	3	4	5	6	7	8	9
SOUTH ALASKA	234	430	707	1011	1156	1549	1549	1551	1551
PACIFIC OCEAN	135	135	135	136	149	149	149	151	151
WEST ROCKIES	459	459	459	459	459	459	459	459	459
EAST ROCKIES	160	160	160	160	160	160	160	160	160
W. TEX./E. N. MEX.	126	126	126	126	126	126	126	126	126
GULF COAST	1278	1278	1278	1278	1278	1278	1278	1278	1278
GULF OF MEXICO	5808	5811	5811	5811	5811	5811	5811	5811	5811
MIDCONTINENT	809	809	809	809	809	809	809	809	809
MI. BASIN AND INT.									
APPALACHIA		196	196	196	196	196	196	196	196
ATLANTIC OCEAN	505	541	569	570	570	570	570	605	605
NATIONAL TOTAL	9514	9946	10252	10558	10716	11109	11109	11148	11148

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, FIA.

TABLE 17
NON-ASSOCIATED INTRASTATE GAS
PRODUCTION SUMMARY
IN 1985
(MMCY/D)

DOE REGION	PRICE STEP								
	1	2	3	4	5	6	7	8	9
N.Y./N.J.	2	2	2	2	2	2	2	2	2
MID-ATLANTIC	124	124	124	124	124	124	124	124	124
SOUTH ATLANTIC	175	182	192	204	216	208	210	213	215
MIDWEST	93	93	93	93	93	93	93	93	93
SOUTHWEST	20325	21124	22328	23644	23909	24073	24302	24695	25149
CENTRAL	1160	1199	1257	1312	1343	1343	1360	1374	1412
NORTH CENTRAL	308	308	308	59E	674	762	857	1006	1201
WEST	209	295	406	50E	535	562	601	651	724
NATIONAL TOTAL	22395	23326	24710	26484	26834	27167	27549	28157	28920

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 18
NON-ASSOCIATED INTRASTATE GAS
PRODUCTION SUMMARY
IN 1990
(MMCP/D)

DOE REGION	PRICE STEP								
	1	2	3	4	5	6	7	8	9
N.Y./N.J.		1	1	1	1	1	1	1	1
MID-ATLANTIC		77	77	77	77	77	77	77	77
SOUTH ATLANTIC	105	138	159	176	182	188	196	208	221
MIDWEST	22	46	46	46	46	46	46	46	46
SOUTHWEST	14292	16466	18951	20920	21796	22448	23381	24934	26819
CENTRAL	815	945	1039	1130	1189	1210	1262	1336	1443
NORTH CENTRAL	205	205	205	541	642	761	898	1130	1445
WEST	129	136	338	460	503	546	607	697	828
NATIONAL TOTAL	15568	18014	20817	23350	24437	25278	26470	28428	30880

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 19
CAPITAL INVESTMENT SUMMARY FOR GAS WELLS
FROM 1977 THRU 1984
(MM\$)

MPC REGION	PRICE STEP								
	1	2	3	4	5	6	7	8	9
SOUTH ALASKA	143	193	290	489	588	882	882	884	884
PACIFIC OCEAN	30	30	30	31	31	31	31	31	31
GULF OF MEXICO	1551	1552	1552	1552	1552	1552	1552	1552	1552
ATLANTIC OCEAN	222	222	234	234	234	234	234	253	253
DOE REGION									
SOUTH ATLANTIC	71	77	85	96	98	100	102	106	108
SOUTHWEST	10906	11570	12629	13845	14091	14258	14490	14907	15441
CENTRAL	610	644	696	749	778	778	796	810	851
NORTH CENTRAL				331	422	530	650	845	1114
WEST		116	213	331	364	397	445	509	607
NATIONAL TOTAL	13533	14404	15729	17658	18157	18761	19181	19896	20839

DATA SOURCES: CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT TO THE PIES OIL AND GAS MODEL.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY
SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 20
CAPITAL INVESTMENT SUMMARY FOR GAS WELLS
FROM 1977 THRU 1989
(MM\$)

NPC REGION	PRICE STEP								
	1	2	3	4	5	6	7	8	9
SOUTH ALASKA		69	255	556	725	1189	1189	1192	1192
PACIFIC OCEAN	59	59	59	59	60	60	60	60	60
GULF OF MEXICO	2402	2405	2405	2405	2405	2405	2405	2405	2405
ATLANTIC OCEAN	242	244	279	304	304	304	304	355	355
DOE REGION									
SOUTH ATLANTIC	89	98	116	137	144	152	161	177	194
SOUTHWEST	13464	14747	17096	19583	20599	21379	22551	24635	27377
CENTRAL	761	821	943	1060	1139	1159	1231	1332	1502
NORTH CENTRAL				466	614	793	1008	1385	1953
WEST		116	288	467	530	595	691	837	1068
NATIONAL TOTAL	17016	18559	21440	25036	26520	28036	29600	32377	36105

DATA SOURCES: CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT TO THE PIES OIL AND GAS MODEL.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY
SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 21
DRILLING SUMMARY FOR GAS WELLS
FROM 1977 THRU 1984
(MMFT)

NPC REGION	PRICE STEP								
	1	2	3	4	5	6	7	8	9
SOUTH ALASKA	1	1	1	2	3	4	4	4	4
GULF OF MEXICO	26	26	26	26	26	26	26	26	26
ATLANTIC OCEAN	2	2	2	2	2	2	2	2	2
DOE REGION									
SOUTH ATLANTIC	3	3	4	4	4	4	4	5	5
SOUTHWEST	491	520	565	619	629	635	644	661	685
CENTRAL	31	32	35	38	39	39	40	40	42
NORTH CENTRAL				16	20	25	31	40	53
WEST		5	9	14	15	16	18	21	25
NATIONAL TOTAL	554	590	642	721	738	751	769	799	842

SOURCE: FOOTAGE DRILLED DATA FROM SECTION 1, DRILLING COSTS OF THE U.S. OIL AND GAS PRODUCING INDUSTRIES PUBLISHED IN THE JOINT ASSOCIATION AMERICAN PETROLEUM COUNCIL, THE AMERICAN GAS ASSOCIATION, AND VARIOUS OTHER ENERGY RELATED INDUSTRIES. THE DATA IS INPUT TO THE PIES OIL AND GAS MODEL AND THE ABOVE FIGURES ARE CALCULATED THERE. OTHER SOURCES INCLUDE "QUARTERLY REVIEW OF DRILLING STATISTICS", AMERICAN PETROLEUM INSTITUTE, WASHINGTON, D.C. FOR INITIAL EXPLORATORY FOOTAGE AND "U.S. ENERGY OUTLOOK- OIL AND GAS AVAILABILITY", WASHINGTON, D.C., 1973.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 22
DRILLING SUMMARY FOR GAS WELLS
FROM 1977 THRU 1989
(MMPT)

NPC REGION	PRICE STEP								
	1	2	3	4	5	6	7	8	9
SOUTH ALASKA			1	2	3	5	5	5	5
PACIFIC OCEAN	1	1	1	1	1	1	1	1	1
GULF OF MEXICO	39	39	39	39	39	39	39	39	39
ATLANTIC OCEAN	2	2	2	2	2	2	2	3	3
DOF REGION									
SOUTH ATLANTIC	4	4	5	6	6	6	7	7	8
SOUTHWEST	606	663	765	872	916	947	996	1082	1200
CENTRAL	38	41	47	53	57	58	61	65	73
NORTH CENTRAL				22	29	38	48	66	94
WEST		5	12	19	22	24	28	34	44
NATIONAL TOTAL	690	756	873	1016	1075	1120	1186	1303	1467

SOURCE: FOOTAGE DRILLED DATA FROM SECTION 1, DRILLING COSTS OF THE U.S. OIL AND GAS PRODUCING INDUSTRIES PUBLISHED IN THE JOINT ASSOCIATION AMERICAN PETROLEUM COUNCIL, THE AMERICAN GAS ASSOCIATION, AND VARIOUS OTHER ENERGY RELATED INDUSTRIES. THE DATA IS INPUT TO THE PIES OIL AND GAS MODEL AND THE ABOVE FIGURES ARE CALCULATED THERE. OTHER SOURCES INCLUDE "QUARTERLY REVIEW OF DRILLING STATISTICS", AMERICAN PETROLEUM INSTITUTE, WASHINGTON, D.C. FOR INITIAL EXPLORATORY FOOTAGE AND "U.S. ENERGY OUTLOOK- OIL AND GAS AVAILABILITY", WASHINGTON, D.C., 1973.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 23
OIL AND GAS SUPPLY AT THE HIGHEST PRICE STEPS
IN 1985

NPC REGION	CRUDE PETROLEUM (MBBL/D)	INTERSTATE GAS (MMCF/D)	INTRASTATE GAS (MMCF/D)	BUTANE (MBBL/D)	OTHER GAS LIQUIDS (MBBL/D)
SOUTH ALASKA	316	1023			
PACIFIC COAST	831			10	9
PACIFIC OCEAN	209	370		9	7
WEST ROCKIES	272	764		25	22
EAST ROCKIES	492	353		31	17
W. TEX./E. N. MEX.	1527	874		152	109
GULF COAST	1949	3437		338	230
GULF OF MEXICO	565	6844		72	62
MIDCONTINENT	544	1833		123	110
MT. B./ INT./ APP.	251	341		10	6
ATLANTIC COAST	112			3	1
ATLANTIC OCEAN	270	625		18	3
NORTH SLOPE	2432	3168			
DOE REGION					
NEW ENGLAND					
N.Y./N.J.			3		
MID-ATLANTIC			168		
SOUTH ATLANTIC			284		
MIDWEST			117		
SOUTHWEST			27784		
CENTRAL			1520		
NORTH CENTRAL			1414		
WEST			955		
NORTHWEST					
NATIONAL TOTAL	9769	19611	32243	791	575

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 24
OIL AND GAS SUPPLY AT THE HIGHEST PRICE STEPS
IN 1990

NPC REGION	CRUDE PETROLEUM (MBBL/D)	INTERSTATE GAS (MMCF/D)	INTRASTATE GAS (MMCF/D)	BUTANE (MBBL/D)	OTHER GAS LIQUIDS (MBBL/D)
SOUTH ALASKA	752	1862			
PACIFIC COAST	816			11	11
PACIFIC OCEAN	190	410		9	7
WEST ROCKIES	258	522		24	22
EAST ROCKIES	426	236		26	15
W. TEX./E. N. MEX.	1199	516		145	111
GULF COAST	1537	1951		289	213
GULF OF MEXICO	495	6381		59	56
MIDCONTINENT	502	1060		116	110
MT. B./ INT./ APP.	248	216		7	4
ATLANTIC COAST	121			4	1
ATLANTIC OCEAN	329	855		19	3
NORTH SLOPE	2898	3253			

DOE REGION

NEW ENGLAND	
N.Y./N.J.	2
MID-ATLANTIC	128
SOUTH ATLANTIC	310
MIDWEST	75
SOUTHWEST	29138
CENTRAL	1548
NORTH CENTRAL	1677
WEST	1062
NORTHWEST	

NATIONAL TOTAL 9772 17263 33941 710 553

DATA SOURCES : PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS, AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

OFFICE RESPONSIBLE : OIL AND GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 25
BREAKDOWN OF REGIONAL PRODUCTION BY CRUDE TYPE
(FRACTION OF REGIONAL CRUDE PRODUCTION)

	NPC REGION												
CRUDE TYPE	1S	2	2A	3	4	5	6	6A	7	8-10	11	11A	1N
SOUTH ALASKAN	1.00												
WEST COAST LIGHT		.39											
PACIFIC OFFSHORE			1.00										
WYOMING MIX				.80	.86								
LOUISIANA ONSHORE							.48						
LOUISIANA OFFSHORE								1.00					
TEXAS GULF COAST							.40						
EAST TEXAS MIX							.10						
WEST TEXAS MIX				.20		1.00	.02		.07				
PAD III HEAVY CRUDE					.14								
PAD II INDIGENOUS										.91			
OKLAHOMA MIX									.93				
PAD I INDIGENOUS										.09	1.00	1.00	
WEST COAST HEAVY		.61											
ALASKAN NORTH SLOPE													1.00

DATA SOURCES : OIL AND GAS JOURNAL, PETROLEUM ENCYCLOPEDIA FOR 1975.
OFFICE RESPONSIBLE : OIL & GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS,
APPLIED ANALYSIS, DOE

TABLE 26
SPLITTING FACTORS FOR INTRASTATE ASSOCIATED
AND DISSOLVED GAS

NPC REGION	DOE REGION						
	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL WEST
PACIFIC COAST							1.00
WEST ROCKIES					.81	.19	
EAST ROCKIES						1.00	
W. TEX./E. N. MEX.					1.00		
GULF COAST				.01	.99		
MIDCONTINENT					.81		.19
MI. B./ INT./ APP.	.01	.55	.13	.31			
ATLANTIC COAST			1.00				

DATA SOURCES : DOE ANALYSIS
OFFICE RESPONSIBLE : OIL & GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE
ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 27
SPLITTING FACTORS FOR INTRASTATE CO-PRODUCTS

	NPC REGION							
DOE REGION	PACIFIC COAST	WEST ROCKIES	EAST ROCKIES	W. TEXAS/ E. N. MEX.	W. GULF BASIN	MIDCON- TINENT	MI. B./Y./ APPLACHIA	ATLANTIC COAST
N.Y./N.J.							1.00	
MID-ATLANTIC							1.00	
SOUTH ATLANTIC				.49			.33	.18
MIDWEST							1.00	
SOUTHWEST		.04	.26	.45	.25			
CENTRAL					1.00			
NORTH CENTRAL		.26				.74		
WEST	.99	.01						

DATA SOURCES : DOE ANALYSIS

OFFICE RESPONSIBLE : OIL & GAS ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE
ANALYSIS, APPLIED ANALYSIS, EIA.

REFINERIES DATA

The refinery data presented in this section were generated under the assumption that there would be no real increase in world oil prices between 1980 and the target years, 1985 and 1990. The data are given in two sets of four tables, one for each target year.

TABLE 1 gives the cost of converting one barrel of the crude type specified by the row heading into petroleum products in the refinery region specified by the column heading. Refinery regions are shown in Figure II-6. The petroleum products produced are liquefied petroleum gases, gasoline, jet fuel, distillate oil, residual oil, naphtha and other. Still gases are consumed in the refinery as fuel. Blanks in the table indicate the absence of links between the corresponding refinery region and crude producing regions. Not all crudes are available for processing in all regions.

TABLE 2 consists of seven sections - one for each refinery region - which give the ratio of barrels of refinery products produced per barrel of crude consumed. There is a volumetric gain indicated for each fuel type and each region since the ratio of total refined product to crude consumed exceeds unity in all tables. For example, refinery region 1 exhibits a gain of 4.2 percent in volume of refined product, since 1,042 barrels of product are produced for every barrel of crude.

TABLE 3 displays equations for price relations between pairs of petroleum products. TABLE 4 shows existing capacity, build limits and build costs for each refinery region. All costs for this section are in 1975 constant dollars.

FIGURE II-6
REFINERY REGIONS
(PADD REGIONS)

1985 REFINERY DATA ASSUMING NO REAL INCREASE IN WORLD OIL PRICE

GENERATION DATE 11878

II-170

TABLE 1: REFINERY COSTS FOR BASE YIELDS (1975 DOLLARS/BARREL)

CRUDE TYPE	REFINERY REGIONS						
	1	2	3	4	5	6	7
ARABIAN LIGHT	2.664	2.664	2.568	2.664	2.664	2.664	2.664
ARABIAN HEAVY	3.297	3.297	3.201	3.297	3.297	3.297	3.297
KUWAITI EXPORT	2.997	2.997	2.901	2.997	2.997	2.997	2.997
IRAQI	2.664	2.664	2.568	2.664	2.664	2.664	2.664
IRANIAN LIGHT	2.529	2.529	2.433	2.529	2.529	2.529	2.529
IRANIAN HEAVY	2.683	2.683	2.587	2.683	2.683	2.683	2.683
MID-EASTERN MIX	2.819	2.819	2.723	2.819	2.819	2.819	2.819
LIBYAN	2.148	2.148	2.052	2.148	2.148	2.148	2.148
ALGERIAN	2.038	2.038	1.942	2.038	2.038	2.038	2.038
NIGERIAN & GABON	2.094	2.094	1.998	2.094	2.094	2.094	2.094
INDONESIAN	2.047	2.047	1.951	2.047	2.047	2.047	2.047
ECUADORIAN	2.350	2.350	2.254	2.350	2.350	2.350	2.350
VENEZUELAN MIX	2.862	2.862	2.766	2.862	2.862	2.862	2.862
MEXICAN	2.664	2.664	2.568	2.664	2.664	2.664	2.664
RUSSIAN EXPORT	2.664	2.664	2.568	2.664	-	2.664	2.664
CHINESE EXPORT	-	-	-	-	2.047	-	-
CANADIAN MIX	2.636	2.636	2.540	2.636	2.636	2.636	2.636
EGYPTIAN/SYRIAN	2.656	2.656	2.560	2.656	2.656	2.656	2.656
ANGOLA/CONGO/ZAIRE	2.047	2.047	1.951	2.047	2.047	2.047	2.047
BOLIVIAN/PERUVIAN	2.038	2.038	1.942	2.038	2.038	2.038	2.038
NORWEGIAN	2.077	2.077	1.981	2.077	2.077	2.077	2.077
SOUTH ASIAN	2.664	2.664	2.568	2.664	2.664	2.664	2.664
TRINIDAD	2.077	2.077	1.981	2.077	2.077	2.077	2.077
UNITED KINGDOM	2.664	2.664	2.568	2.664	2.664	2.664	2.664
SYNTHETIC CRUDE	2.031	2.031	1.935	2.031	2.031	2.031	2.031
ALASKAN NORTH SLOPE	2.448	2.448	2.352	2.448	2.448	2.448	2.448
SOUTH ALASKAN	-	-	-	-	2.139	-	-
WEST COAST LIGHT	-	-	2.442	-	2.538	-	-
WEST COAST HEAVY	-	-	2.517	-	2.613	-	-
PACIFIC OFFSHORE	-	-	2.254	-	2.350	-	-
WYOMING MIX	-	2.428	2.332	2.428	-	-	2.428
SHALE OIL	2.031	2.031	1.935	2.031	-	2.031	2.031
LOUISIANA ONSHORE	2.112	2.112	2.016	2.112	-	2.112	2.112
LOUISIANA OFFSHORE	2.112	2.112	2.016	2.112	-	2.112	2.112
TEXAS GULF COAST	2.081	2.081	1.985	2.081	-	2.081	2.081
EAST TEXAS MIX	2.150	2.150	2.054	2.150	-	2.150	2.150
WEST TEXAS MIX	2.502	2.502	2.406	2.502	-	2.502	2.502
PAD II INDIGENOUS	2.146	2.146	2.050	2.146	-	2.146	2.146
PAD I INDIGENOUS	2.082	2.082	1.986	2.082	-	2.082	2.082
OKLAHOMA MIX	2.179	2.179	2.063	2.179	-	2.179	2.179
PAD V HEAVY CRUDE	-	-	-	-	2.583	-	-
PAD IV HEAVY CRUDE	-	-	-	2.815	-	-	-
PAD III HEAVY CRUDE	-	-	2.580	2.676	-	-	-
PAD II HEAVY CRUDE	-	2.583	-	-	-	-	2.583
NAVAL RESERVE #1 CRUDE	-	-	2.114	-	2.210	-	-

DATA SOURCES : OPERATING COSTS FROM "OIL & GAS JOURNAL" NELSON REFINERY COST INDEX.
CAPACITY COSTS DERIVED FROM "OIL AND GAS JOURNAL"; COSTS FOR NEW CATALYTIC CRACKING AND
REFORMING FROM BUNNER & MOORE ASSOCIATES, INC., PROPRIETARY REFINERY AND PETROCHEMICAL
MODELING SYSTEM (RPMS) DATA BASE.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS,
APPLIED ANALYSIS, EIA.

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 1								
	LIQUIFIED PETROLEUM GASES	GASOLINE	NAPHTHA	JET FUEL	DISTIL- LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT
ARABIAN LIGHT	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
ARABIAN HEAVY	.0272	.4037	.0109	.0221	.2157	.1735	.1528	.0360	1.042
KUWAITI EXPORT	.0291	.4320	.0156	.0272	.2149	.1533	.1328	.0360	1.042
IRAQI	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
IRANIAN LIGHT	.0274	.4067	.0210	.0385	.2836	.1225	.1063	.0360	1.042
IRANIAN HEAVY	.0279	.4137	.0147	.0263	.2406	.1499	.1326	.0360	1.042
MID-EASTERN MIX	.0281	.4165	.0218	.0314	.2547	.1358	.1177	.0360	1.042
LIBYAN	.0323	.4800	.0211	.0323	.2543	.0985	.0875	.0360	1.042
ALGERIAN	.0324	.4804	.0269	.0312	.2467	.1004	.0880	.0360	1.042
NIGERIAN & GABON	.0369	.5479	.0165	.0346	.2213	.0765	.0722	.0360	1.042
INDONESIAN	.0303	.4492	.0080	.0209	.2554	.1255	.1166	.0360	1.042
ECUADORIAN	.0355	.5267	.0277	.0281	.1772	.1112	.0996	.0360	1.042
VENEZUELAN MIX	.0276	.4098	.0122	.0256	.1818	.1865	.1624	.0360	1.042
MEXICAN	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
RUSSIAN EXPORT	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
CANADIAN MIX	.0301	.4465	.0170	.0255	.2232	.1399	.1237	.0360	1.042
EGYPTIAN/SYRIAN	.0281	.4172	.0150	.0267	.2415	.1473	.1302	.0360	1.042
ANGOLA/CONGO/ZAIRE	.0303	.4492	.0080	.0209	.2554	.1255	.1166	.0360	1.042
BOLIVIAN/PERUVIAN	.0324	.4804	.0269	.0312	.2467	.1004	.0880	.0360	1.042
NORWEGIAN	.0345	.5127	.0122	.0302	.2274	.0985	.0903	.0360	1.042
SOUTH ASIAN	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
TRINIDAD	.0345	.5127	.0122	.0302	.2274	.0985	.0903	.0360	1.042
UNITED KINGDOM	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
SYNTHETIC CRUDE	.0356	.5280	.0022	.0374	.3050	.0493	.0484	.0360	1.042
ALASKAN NORTH SLOPE	.0335	.4969	.0108	.0246	.1899	.1315	.1188	.0360	1.042
SHALE OIL	.0356	.5280	.0022	.0374	.3050	.0493	.0484	.0360	1.042
LOUISIANA ONSHORE	.0302	.4488	.0084	.0311	.3008	.0963	.0904	.0360	1.042
LOUISIANA OFFSHORE	.0302	.4488	.0084	.0311	.3008	.0963	.0904	.0360	1.042
TEXAS GULF COAST	.0274	.4063	.0087	.0429	.3483	.0901	.0822	.0360	1.042
EAST TEXAS MIX	.0350	.5188	.0256	.0282	.2129	.0971	.0885	.0360	1.042
WEST TEXAS MIX	.0334	.4955	.0210	.0347	.2605	.0844	.0764	.0360	1.042
PAD II INDIGENOUS	.0310	.4603	.0287	.0327	.2500	.1084	.0948	.0360	1.042
PAD I INDIGENOUS	.0310	.4600	.0150	.0311	.2816	.0978	.0895	.0360	1.042
OKLAHOMA MIX	.0318	.4726	.0161	.0364	.2851	.0865	.0773	.0360	1.042

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 2								
	LIQUIFIED PETROLEUM GASSES	GASOLINE	NAPHTHA	JET FUEL	DISTILLATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT
ARABIAN LIGHT	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
ARABIAN HEAVY	.0187	.4687	.0086	.0314	.2050	.1187	.1568	.0350	1.043
KUWAITI EXPORT	.0196	.4912	.0131	.0385	.2039	.1055	.1361	.0350	1.043
IRAQI	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
IRANIAN LIGHT	.0183	.4597	.0164	.0541	.2674	.0838	.1083	.0350	1.043
IRANIAN HEAVY	.0180	.4710	.0116	.0374	.2296	.1030	.1366	.0350	1.043
MID-EASTERN MIX	.0188	.4704	.0172	.0445	.2422	.0939	.1209	.0350	1.043
LIBYAN	.0210	.5272	.0166	.0456	.2408	.0672	.0895	.0350	1.043
ALGERIAN	.0211	.5298	.0211	.0439	.2333	.0689	.0898	.0350	1.043
NIGERIAN & GABON	.0236	.5915	.0129	.0484	.2079	.0502	.0733	.0350	1.043
INDONESIAN	.0207	.5190	.0062	.0288	.2361	.0807	.1165	.0350	1.043
ECUADORIAN	.0232	.5809	.0217	.0394	.1668	.0747	.1013	.0350	1.043
VENEZUELAN MIX	.0188	.4700	.0097	.0366	.1746	.1296	.1685	.0350	1.043
MEXICAN	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
RUSSIAN EXPORT	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
CANADIAN MIX	.0201	.5045	.0134	.0361	.2117	.0955	.1267	.0350	1.043
EGYPTIAN/SYRIAN	.0189	.4739	.0119	.0379	.2302	.1011	.1341	.0350	1.043
ANGOLA/CONGO/ZAIRE	.0207	.5190	.0062	.0288	.2361	.0807	.1165	.0350	1.043
BOLIVIAN/PERUVIAN	.0211	.5298	.0211	.0439	.2333	.0689	.0898	.0350	1.043
NORWEGIAN	.0225	.5630	.0095	.0423	.2136	.0654	.0916	.0350	1.043
SOUTH ASIAN	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
TRINIDAD	.0225	.5630	.0095	.0423	.2136	.0654	.0916	.0350	1.043
UNITED KINGDOM	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
SYNTHETIC CRUDE	.0226	.5670	.0017	.0520	.2844	.0314	.0488	.0350	1.043
ALASKAN NORTH SLOPE	.0221	.5546	.0084	.0346	.1790	.0881	.1210	.0350	1.043
WYOMING MIX	.0223	.5580	.0178	.0384	.2022	.0716	.0976	.0350	1.043
SHALE OIL	.0226	.5670	.0017	.0520	.2844	.0314	.0488	.0350	1.043
LOUISIANA ONSHORE	.0202	.5058	.0065	.0430	.2795	.0622	.0907	.0350	1.043
LOUISIANA OFFSHORE	.0202	.5058	.0065	.0430	.2795	.0622	.0907	.0350	1.043
TEXAS GULF COAST	.0179	.4493	.0068	.0604	.3290	.0605	.0839	.0350	1.043
EAST TEXAS MIX	.0227	.5697	.0200	.0396	.2008	.0650	.0901	.0350	1.043
WEST TEXAS MIX	.0216	.5403	.0165	.0488	.2459	.0570	.0779	.0350	1.043
PAD II INDIGENOUS	.0203	.5097	.0226	.0463	.2372	.0746	.0972	.0350	1.043
PAD I INDIGENOUS	.0205	.5142	.0116	.0434	.2633	.0645	.0904	.0350	1.043
OKLAHOMA MIX	.0207	.5190	.0126	.0512	.2685	.0584	.0787	.0350	1.043
PAD II HEAVY CRUDE	.0194	.4859	.0103	.0812	.1773	.2339	.0350	-	1.043

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 3								TOTAL REFINERY PRODUCT
	LIQUIFIED PETROLEUM GASES	GASOLINE	NAPHTHA	JET FUEL	DISTIL-LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	
ARABIAN LIGHT	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
ARABIAN HEAVY	.0108	.3730	.0713	.0528	.2007	.1713	.1120	.0350	1.027
KUWAITI EXPORT	.0111	.3837	.1039	.0625	.1922	.1449	.0936	.0350	1.027
IRAQI	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
IRANIAN LIGHT	.0100	.3463	.1261	.0846	.2431	.1101	.0718	.0350	1.027
IRANIAN HEAVY	.0108	.3716	.0931	.0611	.2176	.1434	.0944	.0350	1.027
MID-EASTERN MIX	.0103	.3574	.1316	.0695	.2199	.1231	.0901	.0350	1.027
LIFYAN	.0119	.4122	.1277	.0716	.2197	.0894	.0595	.0350	1.027
ALGERIAN	.0116	.4014	.1582	.0672	.2073	.0879	.0582	.0350	1.027
NIGERIAN & GABON	.0139	.4807	.1022	.0782	.1952	.0714	.0502	.0350	1.027
INDONESIAN	.0122	.4211	.0532	.0506	.2412	.1267	.0868	.0350	1.027
ECUADORIAN	.0128	.4416	.1637	.0608	.1495	.0974	.0662	.0350	1.027
VENEZUELAN MIX	.0109	.3749	.0786	.0605	.1674	.1818	.1178	.0350	1.027
MEXICAN	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
RUSSIAN EXPORT	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
CANADIAN MIX	.0115	.3966	.1064	.0586	.1996	.1322	.0871	.0350	1.027
EGYPTIAN/SYRIAN	.0108	.3738	.0949	.0617	.2178	.1404	.0925	.0350	1.027
ANGOLA/CONGO/ZABRE	.0122	.4211	.0532	.0506	.2412	.1267	.0868	.0350	1.027
BOLIVIAN/PERUVIAN	.0116	.4014	.1582	.0672	.2073	.0879	.0582	.0350	1.027
NORWEGIAN	.0134	.4634	.0776	.0705	.2068	.0956	.0647	.0350	1.027
SOUTH ASIAN	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
TRINIDAD	.0134	.4634	.0776	.0705	.2068	.0956	.0647	.0350	1.027
UNITED KINGDOM	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
SYNTHETIC CRUDE	.0144	.4950	.0146	.0906	.2881	.0523	.0361	.0350	1.027
ALASKAN NORTH SLOPE	.0133	.4576	.0700	.0505	.1760	.1298	.0868	.0350	1.027
WEST COAST LIGHT	.0120	.4137	.0221	.0248	.1008	.2535	.1650	.0350	1.027
WEST COAST HEAVY	.0133	.4600	.0725	.0514	.1376	.1543	.1027	.0350	1.027
PACIFIC OFFSHORE	.0128	.4416	.1637	.0608	.1495	.0974	.0662	.0350	1.027
WYOMING MIX	.0126	.4333	.1380	.0606	.1856	.0965	.0653	.0350	1.027
SHALE OIL	.0144	.4950	.0146	.0906	.2881	.0523	.0361	.0350	1.027
LOUISIANA UNSHORE	.0119	.4123	.0544	.0737	.2782	.0955	.0659	.0350	1.027
LOUISIANA OFFSHORE	.0119	.4123	.0544	.0737	.2782	.0955	.0659	.0350	1.027
TEXAS GULF COAST	.0106	.3654	.0553	.0996	.3152	.0872	.0586	.0350	1.027
EAST TEXAS MIX	.0127	.4388	.1524	.0615	.1812	.0860	.0593	.0350	1.027
WEST TEXAS MIX	.0123	.4241	.1267	.0766	.2242	.0762	.0518	.0350	1.027
PAD II INDIGENOUS	.0110	.3805	.1673	.0698	.2079	.0934	.0621	.0350	1.027
PAD I INDIGENOUS	.0118	.4082	.0936	.0713	.2515	.0926	.0630	.0350	1.027
OKLAHOMA MIX	.0120	.4133	.0993	.0823	.2509	.0807	.0536	.0350	1.027
PAD III HEAVY CRUDE	.0112	.3855	.0991	.0639	.1587	.1656	.1079	.0350	1.027
NAVAL RESERVE #1 CRUDE	.0160	.5537	.0553	.0674	.1823	.0681	.0491	.0350	1.027

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 4								
	LIQUIFIED GASOLINE PETROLEUM GASES		NAPHTHA	JET FUEL	DISTIL- LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT
ARABIAN LIGHT	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
ARABIAN HEAVY	.0096	.3971	.0041	.0460	.2777	.1418	.1218	.0270	1.025
KUWAITI EXPORT	.0101	.4182	.0062	.0565	.2763	.1249	.1057	.0270	1.025
IRAQI	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
IRANIAN LIGHT	.0091	.3784	.0075	.0766	.3502	.0948	.0813	.0270	1.025
IRANIAN HEAVY	.0096	.3961	.0054	.0542	.3069	.1211	.1047	.0270	1.025
MID-EASTERN MIX	.0095	.3939	.0080	.0640	.3220	.1083	.0921	.0270	1.025
LIBYAN	.0108	.4455	.0077	.0658	.3212	.0784	.0684	.0270	1.025
ALGERIAN	.0109	.4503	.0099	.0639	.3133	.0805	.0692	.0270	1.025
NIGERIAN & GABON	.0123	.5085	.0061	.0709	.2815	.0617	.0569	.0270	1.025
INDONESIAN	.0105	.4353	.0029	.0420	.3183	.0989	.0900	.0270	1.025
ECUADORIAN	.0123	.5103	.0105	.0593	.2319	.0928	.0807	.0270	1.025
VENEZUELAN MIX	.0097	.4036	.0046	.0542	.2383	.1556	.1319	.0270	1.025
MEXICAN	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
RUSSIAN EXPORT	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
CANADIAN MIX	.0104	.4297	.0063	.0529	.2865	.1139	.0983	.0270	1.025
EGYPTIAN/SYRIAN	.0096	.3987	.0055	.0548	.3077	.1189	.1028	.0270	1.025
ANGOLA/CONGO/ZAIRE	.0105	.4353	.0029	.0420	.3183	.0989	.0900	.0270	1.025
BOLIVIAN/PERUVIAN	.0109	.4503	.0099	.0639	.3133	.0805	.0692	.0270	1.025
NORWEGIAN	.0116	.4811	.0045	.0619	.2887	.0792	.0709	.0270	1.025
SOUTH ASIAN	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
TRINIDAD	.0116	.4811	.0045	.0619	.2887	.0792	.0709	.0270	1.025
UNITED KINGDOM	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
SYNTHETIC CRUDE	.0113	.4688	.0008	.0733	.3705	.0368	.0364	.0270	1.025
ALASKAN NORTH SLOPE	.0116	.4806	.0040	.0515	.2462	.1086	.0954	.0270	1.025
WYOMING MIX	.0116	.4814	.0085	.0568	.2762	.0871	.0764	.0270	1.025
SHALE OIL	.0113	.4688	.0008	.0733	.3705	.0368	.0364	.0270	1.025
LOUISIANA ONSHORE	.0100	.4156	.0030	.0611	.3666	.0735	.0682	.0270	1.025
LOUISIANA OFFSHORE	.0100	.4156	.0030	.0611	.3666	.0735	.0682	.0270	1.025
TEXAS GULF COAST	.0087	.3595	.0030	.0820	.4165	.0666	.0609	.0270	1.025
EAST TEXAS MIX	.0119	.4930	.0096	.0586	.2746	.0797	.0706	.0270	1.025
WEST TEXAS MIX	.0110	.4558	.0076	.0703	.3271	.0667	.0594	.0270	1.025
PAD II INDIGENOUS	.0104	.4313	.0106	.0670	.3173	.0868	.0745	.0270	1.025
PAD I INDIGENOUS	.0103	.4276	.0054	.0621	.3482	.0759	.0685	.0270	1.025
OKLAHOMA MIX	.0104	.4305	.0058	.0727	.3525	.0668	.0592	.0270	1.025
PAD IV HEAVY CRUDE	.0109	.4526	.0039	.0607	.2622	.0995	.0880	.0270	1.025
PAD III HEAVY CRUDE	.0102	.4205	.0060	.0588	.2322	.1463	.1241	.0270	1.025

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 5								
	LIQUIFIED GASOLINE PETROLEUM GASSES	NAPHTHA	JET FUEL	DISTIL- LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT	
ARABIAN LIGHT	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
ARABIAN HEAVY	.0162	.3730	.0107	.1133	.1355	.2454	.0998	.0470	1.041
KUWAITI EXPORT	.0177	.4079	.0156	.1339	.1295	.2062	.0832	.0470	1.041
IRAQI	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
IRANIAN LIGHT	.0164	.3771	.0194	.1859	.1682	.1614	.0655	.0470	1.041
IRANIAN HEAVY	.0173	.3985	.0139	.1305	.1463	.2038	.0837	.0470	1.041
MID-EASTERN MIX	.0173	.3996	.0202	.1524	.1516	.1799	.0729	.0470	1.041
LIBYAN	.0207	.4781	.0190	.1519	.1468	.1249	.0525	.0470	1.041
ALGERIAN	.0206	.4754	.0244	.1479	.1436	.1288	.0532	.0470	1.041
NIGERIAN & GABON	.0235	.5415	.0144	.1572	.1235	.0920	.0419	.0470	1.041
INDONESIAN	.0177	.4079	.0084	.1142	.1711	.1935	.0812	.0470	1.041
ECUADORIAN	.0221	.5105	.0250	.1324	.1025	.1416	.0599	.0470	1.041
VENEZUELAN MIX	.0167	.3860	.0113	.1242	.1032	.2471	.1005	.0470	1.041
MEXICAN	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
CHINESE EXPORT	.0177	.4079	.0084	.1142	.1711	.1935	.0812	.0470	1.041
CANADIAN MIX	.0187	.4309	.0160	.1260	.1351	.1894	.0778	.0470	1.041
EGYPTIAN/SYRIAN	.0175	.4028	.0142	.1316	.1463	.1995	.0820	.0470	1.041
ANGOLA/CONGO/ZAIRE	.0177	.4079	.0084	.1142	.1711	.1935	.0812	.0470	1.041
BOLIVIAN/PERUVIAN	.0206	.4754	.0244	.1479	.1436	.1288	.0532	.0470	1.041
NORWEGIAN	.0218	.5038	.0111	.1435	.1324	.1267	.0546	.0470	1.041
SOUTH ASIAN	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
TRINIDAD	.0218	.5038	.0111	.1435	.1324	.1267	.0546	.0470	1.041
UNITED KINGDOM	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
SYNTHETIC CRUDE	.0230	.5308	.0020	.1743	.1744	.0607	.0288	.0470	1.041
ALASKAN NORTH SLOPE	.0209	.4821	.0100	.1195	.1131	.1746	.0736	.0470	1.041
SOUTH ALASKAN	.0230	.5315	.0228	.1256	.1217	.1178	.0516	.0470	1.041
WEST COAST LIGHT	.0157	.3630	.0032	.0517	.0660	.3519	.1425	.0470	1.041
WEST COAST HEAVY	.0202	.4669	.0105	.1064	.0897	.2119	.0883	.0470	1.041
PACIFIC OFFSHORE	.0221	.5105	.0250	.1324	.1025	.1416	.0599	.0470	1.041
PAO V HEAVY CRUDE	.0145	.3353	.0395	.0568	.3904	.1574	.0470	-	1.041
NAVAL RESERVE #1 CRUDE	.0262	.6048	.0073	.1278	.1068	.0803	.0387	.0470	1.041

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 6								
	LIQUIFIED GASOLINE PETROLEUM GASSES		NAPHTHA	JET FUEL	DISTIL- LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT
ARABIAN LIGHT	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
ARABIAN HEAVY	.0272	.4037	.0109	.0221	.2157	.1735	.1528	.0360	1.042
KUWAITI EXPORT	.0291	.4320	.0166	.0272	.2149	.1533	.1328	.0360	1.042
IRAQI	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
IRANIAN LIGHT	.0274	.4067	.0210	.0385	.2836	.1225	.1063	.0360	1.042
IRANIAN HEAVY	.0279	.4137	.0147	.0263	.2408	.1499	.1326	.0360	1.042
MID-EASTERN MIX	.0281	.4165	.0218	.0314	.2547	.1358	.1177	.0360	1.042
LIBYAN	.0323	.4800	.0211	.0323	.2543	.0985	.0875	.0360	1.042
ALGERIAN	.0324	.4804	.0269	.0312	.2467	.1004	.0880	.0360	1.042
NIGERIAN & GABON	.0369	.5479	.0165	.0346	.2213	.0765	.0722	.0360	1.042
INDONESIAN	.0303	.4492	.0080	.0209	.2554	.1255	.1166	.0360	1.042
ECUADORIAN	.0355	.5267	.0277	.0281	.1772	.1112	.0996	.0360	1.042
VENEZUELAN MIX	.0276	.4098	.0122	.0256	.1818	.1865	.1624	.0360	1.042
MEXICAN	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
RUSSIAN EXPORT	.0266	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
CANADIAN MIX	.0301	.4465	.0170	.0255	.2232	.1399	.1237	.0360	1.042
EGYPTIAN/SYRIAN	.0281	.4172	.0150	.0267	.2415	.1473	.1302	.0360	1.042
ANGOLA/CONGO/ZAIRE	.0303	.4492	.0080	.0209	.2554	.1255	.1166	.0360	1.042
BOLIVIAN/PERUVIAN	.0324	.4804	.0269	.0312	.2467	.1004	.0880	.0360	1.042
NORWEGIAN	.0345	.5127	.0122	.0302	.2274	.0985	.0903	.0360	1.042
SOUTH ASIAN	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
TRINIDAD	.0345	.5127	.0122	.0302	.2274	.0985	.0903	.0360	1.042
UNITED KINGDOM	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
SYNTHETIC CRUDE	.0356	.5280	.0022	.0374	.3050	.0493	.0484	.0360	1.042
ALASKAN NORTH SLOPE	.0335	.4969	.0108	.0246	.1899	.1315	.1188	.0360	1.042
SHALE OIL	.0356	.5280	.0022	.0374	.3050	.0493	.0484	.0360	1.042
LOUISIANA ONSHORE	.0302	.4488	.0084	.0311	.3008	.0963	.0904	.0360	1.042
LOUISIANA OFFSHORE	.0302	.4488	.0084	.0311	.3008	.0963	.0904	.0360	1.042
TEXAS GULF COAST	.0274	.4063	.0087	.0429	.3483	.0901	.0822	.0360	1.042
EAST TEXAS MIX	.0350	.5188	.0256	.0282	.2129	.0971	.0885	.0360	1.042
WEST TEXAS MIX	.0334	.4955	.0210	.0347	.2605	.0844	.0764	.0360	1.042
PAD II INDIGENOUS	.0310	.4603	.0287	.0327	.2500	.1084	.0948	.0360	1.042
PAD I INDIGENOUS	.0310	.4600	.0150	.0311	.2816	.0978	.0895	.0360	1.042
OKLAHOMA MIX	.0318	.4726	.0161	.0364	.2851	.0865	.0773	.0360	1.042

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TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 7								
	LIQUIFIED GASOLINE PETROLEUM GASES	NAPHTHA	JET FUEL	DISTIL- LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT	
ARABIAN LIGHT	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
ARABIAN HEAVY	.0187	.4687	.0086	.0314	.2050	.1187	.1568	.0350	1.043
KUWAITI EXPORT	.0196	.4912	.0131	.0385	.2039	.1055	.1361	.0350	1.043
IRAQI	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
IRANIAN LIGHT	.0183	.4597	.0164	.0541	.2674	.0838	.1083	.0350	1.043
IRANIAN HEAVY	.0188	.4710	.0116	.0374	.2296	.1030	.1366	.0350	1.043
MID-EASTERN MIX	.0188	.4704	.0172	.0445	.2422	.0939	.1209	.0350	1.043
LIBYAN	.0210	.5272	.0166	.0456	.2408	.0672	.0895	.0350	1.043
ALGERIAN	.0211	.5298	.0211	.0439	.2333	.0689	.0898	.0350	1.043
NIGERIAN & GABON	.0236	.5915	.0129	.0484	.2079	.0502	.0733	.0350	1.043
INDONESIAN	.0207	.5190	.0062	.0288	.2361	.0807	.1165	.0350	1.043
ECUADORIAN	.0232	.5809	.0217	.0394	.1668	.0747	.1013	.0350	1.043
VENEZUELAN MIX	.0188	.4700	.0097	.0366	.1746	.1298	.1685	.0350	1.043
MEXICAN	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
RUSSIAN EXPORT	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
CANADIAN MIX	.0201	.5045	.0134	.0361	.2117	.0955	.1267	.0350	1.043
EGYPTIAN/SYRIAN	.0189	.4739	.0119	.0379	.2302	.1011	.1341	.0350	1.043
ANGOLA/CONGO/ZAIRE	.0207	.5190	.0062	.0288	.2361	.0807	.1165	.0350	1.043
BOLIVIAN/PERUVIAN	.0211	.5298	.0211	.0439	.2333	.0689	.0898	.0350	1.043
NORWEGIAN	.0225	.5630	.0095	.0423	.2136	.0654	.0916	.0350	1.043
SOUTH ASIAN	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
TRINIDAD	.0225	.5630	.0095	.0423	.2136	.0654	.0916	.0350	1.043
UNITED KINGDOM	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
SYNTHETIC CRUDE	.0226	.5670	.0017	.0520	.2844	.0314	.0488	.0350	1.043
ALASKAN NORTH SLOPE	.0221	.5546	.0084	.0346	.1790	.0881	.1210	.0350	1.043
WYOMING MIX	.0223	.5580	.0178	.0384	.2022	.0716	.0976	.0350	1.043
SHALF OIL	.0226	.5670	.0017	.0520	.2844	.0314	.0488	.0350	1.043
LOUISIANA ONSHORE	.0202	.5058	.0065	.0430	.2795	.0622	.0907	.0350	1.043
LOUISIANA OFFSHORE	.0202	.5058	.0065	.0430	.2795	.0622	.0907	.0350	1.043
TEXAS GULF COAST	.0179	.4493	.0068	.0604	.3290	.0605	.0839	.0350	1.043
EAST TEXAS MIX	.0227	.5697	.0200	.0396	.2008	.0650	.0901	.0350	1.043
WEST TEXAS MIX	.0216	.5403	.0165	.0488	.2459	.0570	.0779	.0350	1.043
PAD II INDIGENOUS	.0203	.5097	.0226	.0463	.2372	.0746	.0972	.0350	1.043
PAD I INDIGENOUS	.0205	.5142	.0116	.0434	.2633	.0645	.0904	.0350	1.043
OKLAHOMA MIX	.0207	.5180	.0126	.0512	.2685	.0584	.0787	.0350	1.043
PAD II HEAVY CRUDE	.0194	.4859	.0103	.0812	.1773	.2339	.0350	-	1.043

SOURCE : REFINERY AND PETROCHEMICAL MODELLING SYSTEM (RPMS) DATA BASE, OWNED
BY BONNER & MOORE ASSOCIATES, INC., WASHINGTON, D.C.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS,
APPLIED ANALYSIS, EIA.

TABLE 3: RELATIVE PRODUCT PRICING RELATIONSHIPS

MINIMUM PRICE DIFFERENTIAL	PRODUCT PRICE COEFFICIENT	PRODUCT PRICE OF	PRODUCT PRICE COEFFICIENT	PRODUCT PRICE OF	VOLUME COST COEFFICIENT	VOLUME DEVIATION COSTS	MAXIMUM PRICE DIFFERENTIAL
.570	<= (1.000 X	GASOLINE)	- (1.000 X	NAPHTHA)			<= .670
.570	<= -(1.000 X	NAPHTHA)	+ (1.000 X	GASOLINE)			<= .670
1.141	<= (1.000 X	GASOLINE)	- (.942 X	JET FUEL)	+ (.058 X	VOL. COST)	<= 1.238
1.211	<= -(1.000 X	JET FUEL)	+ (1.061 X	GASOLINE)	+ (.062 X	VOL. COST)	<= 1.314
2.182	<= (1.000 X	GASOLINE)	- (.901 X	DISTILLATE)	+ (.099 X	VOL. COST)	<= 2.277
2.422	<= -(1.000 X	DISTILLATE)	+ (1.109 X	GASOLINE)	+ (.110 X	VOL. COST)	<= 2.527
4.085	<= (1.000 X	GASOLINE)	- (.835 X	RESIDUAL)	+ (.165 X	VOL. COST)	<= 4.177
4.894	<= -(1.000 X	RESIDUAL)	+ (1.197 X	GASOLINE)	+ (.198 X	VOL. COST)	<= 5.004
2.185	<= (1.000 X	GASOLINE)	- (.875 X	OTHER)	+ (.125 X	VOL. COST)	<= 2.278
2.498	<= -(1.000 X	OTHER)	+ (1.143 X	GASOLINE)	+ (.143 X	VOL. COST)	<= 2.605
4.083	<= (1.000 X	GASOLINE)	- (.875 X	STILL GAS)	+ (.125 X	VOL. COST)	<= 4.177
4.568	<= -(1.000 X	STILL GAS)	+ (1.143 X	GASOLINE)	+ (.143 X	VOL. COST)	<= 4.775
.521	<= (1.000 X	NAPHTHA)	- (.942 X	JET FUEL)	+ (.058 X	VOL. COST)	<= .618
.554	<= -(1.000 X	JET FUEL)	+ (1.061 X	NAPHTHA)	+ (.062 X	VOL. COST)	<= .657
1.562	<= (1.000 X	NAPHTHA)	- (.901 X	DISTILLATE)	+ (.099 X	VOL. COST)	<= 1.657
1.734	<= -(1.000 X	DISTILLATE)	+ (1.109 X	NAPHTHA)	+ (.110 X	VOL. COST)	<= 1.839
3.465	<= (1.000 X	NAPHTHA)	- (.835 X	RESIDUAL)	+ (.165 X	VOL. COST)	<= 3.558
4.151	<= -(1.000 X	RESIDUAL)	+ (1.197 X	NAPHTHA)	+ (.198 X	VOL. COST)	<= 4.262
1.565	<= (1.000 X	NAPHTHA)	- (.875 X	OTHER)	+ (.125 X	VOL. COST)	<= 1.658
1.789	<= -(1.000 X	OTHER)	+ (1.143 X	NAPHTHA)	+ (.143 X	VOL. COST)	<= 1.896
3.463	<= (1.000 X	NAPHTHA)	- (.875 X	STILL GAS)	+ (.125 X	VOL. COST)	<= 3.556
3.959	<= -(1.000 X	STILL GAS)	+ (1.143 X	NAPHTHA)	+ (.143 X	VOL. COST)	<= 4.066
1.054	<= (1.000 X	JET FUEL)	- (.957 X	DISTILLATE)	+ (.043 X	VOL. COST)	<= 1.153
1.102	<= -(1.000 X	DISTILLATE)	+ (1.045 X	JET FUEL)	+ (.045 X	VOL. COST)	<= 1.205
3.076	<= (1.000 X	JET FUEL)	- (.886 X	RESIDUAL)	+ (.114 X	VOL. COST)	<= 3.170
3.471	<= -(1.000 X	RESIDUAL)	+ (1.128 X	JET FUEL)	+ (.128 X	VOL. COST)	<= 3.577
3.073	<= (1.000 X	JET FUEL)	- (.929 X	STILL GAS)	+ (.071 X	VOL. COST)	<= 3.170
3.309	<= -(1.000 X	STILL GAS)	+ (1.076 X	JET FUEL)	+ (.077 X	VOL. COST)	<= 3.413

(CONTINUED)

TABLE 3: RELATIVE PRODUCT PRICING RELATIONSHIPS

MINIMUM PRICE DIFFERENTIAL	PRODUCT PRICE COEFFICIENT	PRODUCT PRICE OF	PRODUCT PRICE COEFFICIENT	PRODUCT PRICE OF	VOLUME COST COEFFICIENT	VOLUME DEVIATION COSTS	MAXIMUM PRICE DIFFERENTIAL
1.058	<= (1.000	X JET FUEL)	- (.929	X OTHER)	+ (.071	X VOL. COST)	<= 1.154
1.139	<= -(1.000	X OTHER)	+ (1.076	X JET FUEL)	+ (.077	X VOL. COST)	<= 1.243
2.063	<= (1.000	X DISTILLATE)	- (.927	X RESIDUAL)	+ (.073	X VOL. COST)	<= 2.159
2.227	<= -(1.000	X RESIDUAL)	+ (1.079	X DISTILLATE)	+ (.079	X VOL. COST)	<= 2.330
.046-	<= (1.000	X DISTILLATE)	- (.971	X OTHER)	+ (.029	X VOL. COST)	<= .052
.048-	<= -(1.000	X OTHER)	+ (1.030	X DISTILLATE)	+ (.030	X VOL. COST)	<= .054
2.060	<= (1.000	X DISTILLATE)	- (.971	X STILL GAS)	+ (.029	X VOL. COST)	<= 2.158
2.122	<= -(1.000	X STILL GAS)	+ (1.030	X DISTILLATE)	+ (.030	X VOL. COST)	<= 2.223
2.122	<= (1.000	X OTHER)	- (.954	X RESIDUAL)	+ (.046	X VOL. COST)	<= 2.220
2.224	<= -(1.000	X RESIDUAL)	+ (1.047	X OTHER)	+ (.048	X VOL. COST)	<= 2.326
2.119	<= (1.000	X OTHER)	- (1.000	X STILL GAS)			<= 2.219
2.119	<= -(1.000	X STILL GAS)	+ (1.000	X OTHER)			<= 2.219
.047-	<= (1.000	X STILL GAS)	- (.954	X RESIDUAL)	+ (.046	X VOL. COST)	<= .051
.049-	<= -(1.000	X RESIDUAL)	+ (1.047	X STILL GAS)	+ (.048	X VOL. COST)	<= .053

DATA SOURCE : COSTS AND PRICE RELATIONSHIPS ARE OUTPUT FROM THE REFINERY CONVERSION
SAIP-MODEL IMBEDDED IN PIES.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS,
APPLIED ANALYSIS, EIA.

TABLE 4: REFINERY CAPACITY DATA

REFINERY REGIONS	EXISTING CAPACITY (THOUSANDS OF BARRELS PER CALENDAR DAY)	BUILD LIMITS (THOUSANDS OF BARRELS PER CALENDAR DAY)	BUILD COSTS (1975 DOLLARS PER THOUSANDS OF BARRELS)
REFINERY REGION 1 - PAD 1A	1467	348	.6062
REFINERY REGION 2 - PAD 2A	2596	221	.5563
REFINERY REGION 3 - PAD 3	6644	-	.5013
REFINERY REGION 4 - PAD 4	523	46	.5415
REFINERY REGION 5 - PAD 5	2667	207	.5512
REFINERY REGION 6 - PAD 1B	250	175	.6062
REFINERY REGION 7 - PAD 2B	1201	124	.5563

DATA SOURCE : CAPACITY ROUNDS BASED ON DATA PUBLISHED IN FEA'S "TRENDS IN REFINERY CAPACITY AND UTILIZATION", BY E.L. PEER AND F.V. MARSIK, OFFICE OF OIL & GAS, FEA, 1975. CAPACITY COSTS DERIVED FROM REFERENCES IN "OIL & GAS JOURNAL".

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS, EIA.

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1990 REFINERY DATA ASSUMING NO REAL INCREASE IN WORLD OIL PRICE

GENERATION DATE 11-78

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TABLE 1: REFINERY COSTS FOR BASE YIELDS (1975 DOLLARS/BARREL)

CRUDE TYPE	REFINERY REGIONS						
	1	2	3	4	5	6	7
ARABIAN LIGHT	2.664	2.664	2.568	2.664	2.664	2.664	2.664
ARABIAN HEAVY	3.297	3.297	3.201	3.297	3.297	3.297	3.297
KUWAITI EXPORT	2.997	2.997	2.901	2.997	2.997	2.997	2.997
IRAQI	2.664	2.664	2.568	2.664	2.664	2.664	2.664
IRANIAN LIGHT	2.529	2.529	2.433	2.529	2.529	2.529	2.529
IRANIAN HEAVY	2.683	2.683	2.587	2.683	2.683	2.683	2.683
MID-EASTERN MIX	2.819	2.819	2.723	2.819	2.819	2.819	2.819
LIBYAN	2.148	2.148	2.052	2.148	2.148	2.148	2.148
ALGERIAN	2.038	2.038	1.942	2.038	2.038	2.038	2.038
NIGERIAN & GABON	2.094	2.094	1.998	2.094	2.094	2.094	2.094
INDONESIAN	2.047	2.047	1.951	2.047	2.047	2.047	2.047
ECUADORIAN	2.350	2.350	2.254	2.350	2.350	2.350	2.350
VENEZUELAN MIX	2.862	2.862	2.766	2.862	2.862	2.862	2.862
MEXICAN	2.664	2.664	2.568	2.664	2.664	2.664	2.664
RUSSIAN EXPORT	2.664	2.664	2.568	2.664	-	2.664	2.664
CHINESE EXPORT	-	-	-	-	2.047	-	-
CANADIAN MIX	2.636	2.636	2.540	2.636	2.636	2.636	2.636
EGYPTIAN/SYRIAN	2.656	2.656	2.560	2.656	2.656	2.656	2.656
ANGOLA/CONGO/ZAIRE	2.047	2.047	1.951	2.047	2.047	2.047	2.047
BOLIVIAN/PERUVIAN	2.038	2.038	1.942	2.038	2.038	2.038	2.038
NORWEGIAN	2.077	2.077	1.981	2.077	2.077	2.077	2.077
SOUTH ASIAN	2.664	2.664	2.568	2.664	2.664	2.664	2.664
TRINIDAD	2.077	2.077	1.981	2.077	2.077	2.077	2.077
UNITED KINGDOM	2.664	2.664	2.568	2.664	2.664	2.664	2.664
SYNTHETIC CRUDE	2.031	2.031	1.935	2.031	2.031	2.031	2.031
ALASKAN NORTH SLOPE	2.448	2.448	2.352	2.448	2.448	2.448	2.448
SOUTH ALASKAN	-	-	-	-	2.139	-	-
WEST COAST LIGHT	-	-	2.442	-	2.538	-	-
WEST COAST HEAVY	-	-	2.517	-	2.613	-	-
PACIFIC OFFSHORE	-	-	2.254	-	2.350	-	-
WYOMING MIX	-	2.428	2.332	2.428	-	-	2.428
SHALE OIL	2.031	2.031	1.935	2.031	-	2.031	2.031
LOUISIANA ONSHORE	2.112	2.112	2.016	2.112	-	2.112	2.112
LOUISIANA OFFSHORE	2.112	2.112	2.016	2.112	-	2.112	2.112
TEXAS GULF COAST	2.081	2.081	1.985	2.081	-	2.081	2.081
EAST TEXAS MIX	2.150	2.150	2.054	2.150	-	2.150	2.150
WEST TEXAS MIX	2.502	2.502	2.406	2.502	-	2.502	2.502
PAD II INDIGENOUS	2.146	2.146	2.050	2.146	-	2.146	2.146
PAD I INDIGENOUS	2.082	2.082	1.986	2.082	-	2.082	2.082
OKLAHOMA MIX	2.179	2.179	2.083	2.179	-	2.179	2.179
PAD V HEAVY CRUDE	-	-	-	-	2.583	-	-
PAD IV HEAVY CRUDE	-	-	-	2.815	-	-	-
PAD III HEAVY CRUDE	-	-	2.580	2.676	-	-	-
PAD II HEAVY CRUDE	-	2.583	-	-	-	-	2.583
NAVAL RESERVE #1 CRUDE	-	-	2.114	-	2.210	-	-

DATA SOURCES : OPERATING COSTS FROM "OIL & GAS JOURNAL"; NELSON REFINERY COST INDEX.
CAPACITY COSTS DERIVED FROM "OIL AND GAS JOURNAL"; COSTS FOR NEW CATALYTIC CRACKING AND
REFORMING FROM BUNNER & MOORE ASSOCIATES, INC., PROPRIETARY REFINERY AND PETROCHEMICAL
MODELING SYSTEM (RPM) DATA BASE.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS,
APPLIED ANALYSIS, FIA.

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE C OUMED

CRUDE TYPE	REFINERY REGION 1								TOTAL REFINERY PRODUCT
	LIQUIFIED PETROLEUM GASSES	GASOLINE	NAPHTHA	JET FUEL	DISTIL- LATES	RESIDUAL	OTHER PETROLFUM PRODUCTS	STILL GAS	
AKABIAN LIGHT	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
ARABIAN HEAVY	.0272	.4037	.0109	.0221	.2157	.1735	.1528	.0360	1.042
KUWAITI EXPORT	.0291	.4320	.0166	.0272	.2149	.1533	.1328	.0360	1.042
IRAQI	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
IRANIAN LIGHT	.0274	.4067	.0210	.0385	.2836	.1225	.1063	.0360	1.042
IRANIAN HEAVY	.0279	.4137	.0147	.0263	.2408	.1499	.1326	.0360	1.042
MID-EASTERN MIX	.0281	.4165	.0218	.0314	.2547	.1358	.1177	.0360	1.042
LIBYAN	.0323	.4800	.0211	.0323	.2543	.0985	.0875	.0360	1.042
ALGERIAN	.0324	.4804	.0269	.0312	.2467	.1004	.0880	.0360	1.042
NIGERIAN & GABON	.0369	.5479	.0165	.0346	.2213	.0765	.0722	.0360	1.042
INDONESIAN	.0303	.4492	.0080	.0209	.2554	.1255	.1166	.0360	1.042
ECUADORIAN	.0355	.5267	.0277	.0281	.1772	.1112	.0996	.0360	1.042
VENEZUELAN MIX	.0276	.4098	.0122	.0256	.1818	.1865	.1624	.0360	1.042
MEXICAN	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
RUSSIAN EXPORT	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
CANADIAN MIX	.0301	.4465	.0170	.0255	.2232	.1399	.1237	.0360	1.042
EGYPTIAN/SYRIAN	.0281	.4172	.0150	.0267	.2415	.1473	.1302	.0360	1.042
ANGOLA/CONGO/ZAIRE	.0303	.4492	.0080	.0209	.2554	.1255	.1166	.0360	1.042
BOLIVIAN/PERUVIAN	.0324	.4804	.0269	.0312	.2467	.1004	.0880	.0360	1.042
NORWEGIAN	.0345	.5127	.0122	.0302	.2274	.0985	.0903	.0360	1.042
SOUTH ASIAN	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
TRINIDAD	.0345	.5127	.0122	.0302	.2274	.0985	.0903	.0360	1.042
UNITED KINGDOM	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
SYNTHETIC CRUDE	.0356	.5280	.0022	.0374	.3050	.0493	.0484	.0360	1.042
ALASKAN NORTH SLOPE	.0335	.4969	.0108	.0246	.1899	.1315	.1188	.0360	1.042
SHALE OIL	.0356	.5280	.0022	.0374	.3050	.0493	.0484	.0360	1.042
LOUISIANA ONSHORE	.0302	.4488	.0084	.0311	.3008	.0963	.0904	.0360	1.042
LOUISIANA OFFSHORE	.0302	.4488	.0084	.0311	.3008	.0963	.0904	.0360	1.042
TEXAS GULF COAST	.0274	.4063	.0087	.0429	.3483	.0901	.0822	.0360	1.042
EAST TEXAS MIX	.0350	.5188	.0256	.0282	.2129	.0971	.0885	.0360	1.042
WEST TEXAS MIX	.0334	.4955	.0210	.0347	.2605	.0844	.0764	.0360	1.042
PAD II INDIGENOUS	.0310	.4603	.0287	.0327	.2500	.1084	.0948	.0360	1.042
PAD I INDIGENOUS	.0310	.4600	.0150	.0311	.2816	.0978	.0895	.0360	1.042
OKLAHOMA MIX	.0318	.4726	.0161	.0364	.2851	.0865	.0773	.0360	1.042

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 2								
	LIQUIFIED PETROLEUM GASES	GASOLINE	NAPHTHA	JET FUEL	DISTIL-LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT
ARABIAN LIGHT	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
ARABIAN HEAVY	.0187	.4687	.0086	.0314	.2050	.1187	.1568	.0350	1.043
KUWAITI EXPORT	.0196	.4912	.0131	.0385	.2039	.1055	.1361	.0350	1.043
IRAQI	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
IRANIAN LIGHT	.0183	.4597	.0164	.0541	.2674	.0838	.1083	.0350	1.043
IRANIAN HEAVY	.0188	.4710	.0116	.0374	.2296	.1030	.1366	.0350	1.043
MID-EASTERN MIX	.0188	.4704	.0172	.0445	.2422	.0939	.1209	.0350	1.043
LIBYAN	.0210	.5272	.0166	.0456	.2408	.0672	.0895	.0350	1.043
ALGERIAN	.0211	.5298	.0211	.0439	.2333	.0689	.0898	.0350	1.043
NIGERIAN & GABON	.0236	.5915	.0129	.0484	.2079	.0502	.0733	.0350	1.043
INDONESIAN	.0207	.5190	.0062	.0288	.2361	.0807	.1165	.0350	1.043
ECUADORIAN	.0232	.5809	.0217	.0394	.1668	.0747	.1013	.0350	1.043
VENEZUELAN MIX	.0188	.4700	.0097	.0366	.1746	.1298	.1685	.0350	1.043
MEXICAN	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
RUSSIAN EXPORT	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
CANADIAN MIX	.0201	.5045	.0134	.0361	.2117	.0955	.1267	.0350	1.043
EGYPTIAN/SYRIAN	.0189	.4739	.0119	.0379	.2302	.1011	.1341	.0350	1.043
ANGOLA/CONGO/ZAIRE	.0207	.5190	.0062	.0288	.2361	.0807	.1165	.0350	1.043
BOLIVIAN/PERUVIAN	.0211	.5298	.0211	.0439	.2333	.0689	.0898	.0350	1.043
NORWEGIAN	.0225	.5630	.0095	.0423	.2136	.0654	.0916	.0350	1.043
SOUTH ASIAN	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
TRINIDAD	.0225	.5630	.0095	.0423	.2136	.0654	.0916	.0350	1.043
UNITED KINGDOM	.0192	.4807	.0132	.0455	.2512	.0856	.1125	.0350	1.043
SYNTHETIC CRUDE	.0226	.5670	.0017	.0520	.2844	.0314	.0488	.0350	1.043
ALASKAN NORTH SLOPE	.0221	.5546	.0084	.0346	.1790	.0881	.1210	.0350	1.043
WYOMING MIX	.0223	.5580	.0178	.0384	.2022	.0716	.0976	.0350	1.043
SHAPE OIL	.0226	.5670	.0017	.0520	.2844	.0314	.0488	.0350	1.043
LOUISIANA ONSHORE	.0202	.5058	.0065	.0430	.2795	.0622	.0907	.0350	1.043
LOUISIANA OFFSHORE	.0202	.5058	.0065	.0430	.2795	.0622	.0907	.0350	1.043
TEXAS GULF COAST	.0179	.4493	.0068	.0604	.3290	.0605	.0839	.0350	1.043
EAST TEXAS MIX	.0227	.5697	.0200	.0396	.2008	.0650	.0901	.0350	1.043
WEST TEXAS MIX	.0216	.5403	.0165	.0488	.2459	.0570	.0779	.0350	1.043
PAD II INDIGENOUS	.0203	.5097	.0226	.0463	.2372	.0746	.0972	.0350	1.043
PAD I INDIGENOUS	.0205	.5142	.0116	.0434	.2633	.0645	.0904	.0350	1.043
OKLAHOMA MIX	.0207	.5180	.0126	.0512	.2685	.0584	.0787	.0350	1.043
PAD II HEAVY CRUDE	.0194	.4859	.0103	.0812	.1773	.2339	.0350	-	1.043

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 3								
	LIQUIFIED PETROLEUM GASES	GASOLINE	NAPHTHA	JET FUEL	DISTIL-LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT
ARABIAN LIGHT	.0108	.3729	.1040	.0734	.2356	.1176	.0770	.0350	1.027
ARABIAN HEAVY	.0108	.3730	.0713	.0528	.2007	.1713	.1120	.0350	1.027
KUWAITI EXPORT	.0111	.3837	.1039	.0625	.1922	.1449	.0936	.0350	1.027
IRAQI	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
IRANIAN LIGHT	.0100	.3463	.1261	.0846	.2431	.1101	.0718	.0350	1.027
IRANIAN HEAVY	.0108	.3716	.0931	.0611	.2176	.1434	.0944	.0350	1.027
MID-EASTERN MIX	.0103	.3574	.1316	.0695	.2199	.1231	.0801	.0350	1.027
LIBYAN	.0119	.4122	.1277	.0716	.2197	.0894	.0595	.0350	1.027
ALGERIAN	.0116	.4014	.1582	.0672	.2073	.0879	.0582	.0350	1.027
NIGERIAN & GABON	.0139	.4807	.1022	.0782	.1952	.0714	.0502	.0350	1.027
INDONESIAN	.0122	.4211	.0532	.0506	.2412	.1267	.0868	.0350	1.027
ECUADORIAN	.0128	.4416	.1637	.0608	.1495	.0974	.0662	.0350	1.027
VENEZUELAN MIX	.0109	.3749	.0786	.0605	.1674	.1818	.1178	.0350	1.027
MEXICAN	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
RUSSIAN EXPORT	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
CANADIAN MIX	.0115	.3966	.1064	.0586	.1996	.1322	.0871	.0350	1.027
EGYPTIAN/SYRIAN	.0108	.3738	.0949	.0617	.2178	.1404	.0925	.0350	1.027
ANGOLA/CONGO/ZAIRE	.0122	.4211	.0532	.0506	.2412	.1267	.0868	.0350	1.027
BOLIVIAN/PERUVIAN	.0116	.4014	.1582	.0672	.2073	.0879	.0582	.0350	1.027
NORWEGIAN	.0134	.4634	.0776	.0705	.2068	.0956	.0647	.0350	1.027
SOUTH ASIAN	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
TRINIDAD	.0134	.4634	.0776	.0705	.2068	.0956	.0647	.0350	1.027
UNITED KINGDOM	.0108	.3729	.1048	.0734	.2356	.1176	.0770	.0350	1.027
SYNTHETIC CRUDE	.0144	.4959	.0146	.0906	.2881	.0523	.0361	.0350	1.027
ALASKAN NORTH SLOPE	.0133	.4576	.0700	.0585	.1760	.1298	.0868	.0350	1.027
WEST COAST LIGHT	.0120	.4137	.0221	.0248	.1008	.2535	.1650	.0350	1.027
WEST COAST HEAVY	.0133	.4600	.0725	.0514	.1376	.1543	.1027	.0350	1.027
PACIFIC OFFSHORE	.0128	.4416	.1637	.0608	.1495	.0974	.0662	.0350	1.027
WYOMING MIX	.0126	.4333	.1380	.0606	.1856	.0965	.0653	.0350	1.027
SHAPE OIL	.0144	.4959	.0146	.0906	.2881	.0523	.0361	.0350	1.027
LOUISIANA ONSHORE	.0119	.4123	.0544	.0737	.2782	.0955	.0659	.0350	1.027
LOUISIANA OFFSHORE	.0119	.4123	.0544	.0737	.2782	.0955	.0659	.0350	1.027
TEXAS GULF COAST	.0106	.3654	.0553	.0996	.3152	.0872	.0586	.0350	1.027
EAST TEXAS MIX	.0127	.4388	.1524	.0615	.1812	.0860	.0593	.0350	1.027
WEST TEXAS MIX	.0123	.4241	.1267	.0766	.2242	.0762	.0518	.0350	1.027
PAD II INDIGENOUS	.0110	.3805	.1673	.0698	.2079	.0934	.0621	.0350	1.027
PAD I INDIGENOUS	.0118	.4082	.0936	.0713	.2515	.0926	.0630	.0350	1.027
OKLAHOMA MIX	.0120	.4133	.0993	.0823	.2509	.0807	.0536	.0350	1.027
PAD III HEAVY CRUDE	.0112	.3855	.0991	.0639	.1587	.1656	.1079	.0350	1.027
NAVAL RESERVE #1 CRUDE	.0160	.5537	.0553	.0674	.1823	.0681	.0491	.0350	1.027

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 4								
	LIQUIFIED PETROLEUM GASES	GASOLINE	NAPHTHA	JET FUEL	DISTIL-LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT
ARABIAN LIGHT	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
ARABIAN HEAVY	.0096	.3971	.0041	.0460	.2777	.1418	.1218	.0270	1.025
KUWAITI EXPORT	.0101	.4182	.0062	.0565	.2763	.1249	.1057	.0270	1.025
IRAQI	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
IRANIAN LIGHT	.0091	.3784	.0075	.0766	.3502	.0948	.0813	.0270	1.025
IRANIAN HEAVY	.0096	.3961	.0054	.0542	.3069	.1211	.1047	.0270	1.025
MID-EASTERN MIX	.0095	.3939	.0080	.0640	.3220	.1083	.0921	.0270	1.025
LIBYAN	.0108	.4455	.0077	.0658	.3212	.0784	.0684	.0270	1.025
ALGERIAN	.0109	.4503	.0099	.0639	.3133	.0805	.0692	.0270	1.025
NIGERIAN & GABON	.0123	.5085	.0061	.0709	.2815	.0617	.0569	.0270	1.025
INDONESIAN	.0105	.4353	.0029	.0420	.3183	.0989	.0900	.0270	1.025
ECUADORIAN	.0123	.5103	.0105	.0593	.2319	.0928	.0807	.0270	1.025
VENEZUELAN MIX	.0097	.4036	.0046	.0542	.2383	.1556	.1319	.0270	1.025
MEXICAN	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
RUSSIAN EXPORT	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
CANADIAN MIX	.0104	.4297	.0063	.0529	.2865	.1139	.0983	.0270	1.025
EGYPTIAN/SYRIAN	.0096	.3907	.0055	.0548	.3077	.1189	.1028	.0270	1.025
ANGOLA/CONGO/ZAIRE	.0105	.4353	.0029	.0420	.3183	.0989	.0900	.0270	1.025
BOLIVIAN/PERUVIAN	.0109	.4503	.0099	.0639	.3133	.0805	.0692	.0270	1.025
NORWEGIAN	.0116	.4811	.0045	.0619	.2887	.0792	.0709	.0270	1.025
SOUTH ASIAN	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
TRINIDAD	.0116	.4811	.0045	.0619	.2887	.0792	.0709	.0270	1.025
UNITED KINGDOM	.0097	.3999	.0061	.0652	.3327	.0989	.0854	.0270	1.025
SYNTHETIC CRUDE	.0113	.4688	.0008	.0733	.3705	.0368	.0364	.0270	1.025
ALASKAN NORTH SLOPE	.0116	.4806	.0040	.0515	.2462	.1086	.0954	.0270	1.025
WYOMING MIX	.0116	.4814	.0085	.0560	.2762	.0871	.0764	.0270	1.025
SHALE OIL	.0113	.4688	.0008	.0733	.3705	.0368	.0364	.0270	1.025
LOUISIANA ONSHORE	.0100	.4156	.0030	.0611	.3666	.0735	.0682	.0270	1.025
LOUISIANA OFFSHORE	.0100	.4156	.0030	.0611	.3666	.0735	.0682	.0270	1.025
TEXAS GULF COAST	.0007	.3595	.0030	.0828	.4165	.0666	.0609	.0270	1.025
EAST TEXAS MIX	.0119	.4930	.0096	.0586	.2746	.0797	.0706	.0270	1.025
WEST TEXAS MIX	.0110	.4558	.0076	.0703	.3271	.0667	.0594	.0270	1.025
PAD II INDIGENOUS	.0104	.4313	.0106	.0670	.3173	.0868	.0745	.0270	1.025
PAD I INDIGENOUS	.0103	.4276	.0054	.0621	.3482	.0759	.0685	.0270	1.025
OKLAHOMA MIX	.0104	.4305	.0058	.0727	.3525	.0668	.0592	.0270	1.025
PAD IV HEAVY CRUDE	.0109	.4526	.0039	.0607	.2822	.0995	.0880	.0270	1.025
PAD III HEAVY CRUDE	.0102	.4205	.0060	.0588	.2322	.1463	.1241	.0270	1.025

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 5								TOTAL REFINERY PRODUCT
	LIQUIFIED GASOLINE PETROLEUM GASSES		NAPHTHA	JET FUEL	DISTIL- LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	
ARABIAN LIGHT	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
ARABIAN HEAVY	.0162	.3730	.0107	.1133	.1355	.2454	.0998	.0470	1.041
KUWAITI EXPORT	.0177	.4079	.0156	.1339	.1295	.2062	.0832	.0470	1.041
IRAQI	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
IRANIAN LIGHT	.0164	.3771	.0194	.1859	.1687	.1614	.0655	.0470	1.041
IRANIAN HEAVY	.0173	.3985	.0139	.1305	.1463	.2038	.0837	.0470	1.041
MID-EASTERN MIX	.0173	.3996	.0202	.1524	.1516	.1799	.0729	.0470	1.041
LIBYAN	.0207	.4781	.0190	.1519	.1468	.1249	.0525	.0470	1.041
ALGERIAN	.0206	.4754	.0244	.1479	.1436	.1288	.0532	.0470	1.041
NIGERIAN & GABON	.0235	.5415	.0144	.1572	.1235	.0920	.0419	.0470	1.041
INDONESIAN	.0177	.4079	.0084	.1142	.1711	.1935	.0812	.0470	1.041
ECUADORIAN	.0221	.5105	.0250	.1324	.1025	.1416	.0599	.0470	1.041
VENEZUELAN MIX	.0167	.3860	.0113	.1242	.1082	.2471	.1005	.0470	1.041
MEXICAN	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
CHINESE EXPORT	.0177	.4079	.0084	.1142	.1711	.1935	.0812	.0470	1.041
CANADIAN MIX	.0187	.4309	.0160	.1260	.1351	.1894	.0778	.0470	1.041
EGYPTIAN/SYRIAN	.0175	.4028	.0142	.1316	.1463	.1995	.0820	.0470	1.041
ANGOLA/CONGO/ZAIRE	.0177	.4079	.0084	.1142	.1711	.1935	.0812	.0470	1.041
BOLIVIAN/PERUVIAN	.0206	.4754	.0244	.1479	.1436	.1288	.0532	.0470	1.041
NORWEGIAN	.0218	.5038	.0111	.1435	.1324	.1267	.0546	.0470	1.041
SOUTH ASIAN	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
TRINIDAD	.0218	.5038	.0111	.1435	.1324	.1267	.0546	.0470	1.041
UNITED KINGDOM	.0173	.4000	.0160	.1596	.1612	.1703	.0695	.0470	1.041
SYNTHETIC CRUDE	.0230	.5308	.0020	.1743	.1744	.0607	.0288	.0470	1.041
ALASKAN NORTH SLOPE	.0209	.4821	.0100	.1195	.1131	.1746	.0736	.0470	1.041
SOUTH ALASKAN	.0230	.5315	.0228	.1256	.1217	.1178	.0516	.0470	1.041
WEST COAST LIGHT	.0157	.3630	.0032	.0517	.0660	.3519	.1425	.0470	1.041
WEST COAST HEAVY	.0202	.4669	.0105	.1064	.0897	.2119	.0883	.0470	1.041
PACIFIC OFFSHORE	.0221	.5105	.0250	.1324	.1025	.1416	.0599	.0470	1.041
PAD V HEAVY CRUDE	.0145	.3353	.0395	.0568	.1904	.1574	.0470	-	1.041
NAVAL RESERVE #1 CRUDE	.0262	.6048	.0073	.1278	.1088	.0803	.0387	.0470	1.041

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 6								
	LIQUIFIED PETROLEUM GASSES	GASOLINE	NAPHTHA	JET FUEL	DISTIL-LATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	STILL GAS	TOTAL REFINERY PRODUCT
ARABIAN LIGHT	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
ARABIAN HEAVY	.0272	.4037	.0109	.0221	.2157	.1735	.1528	.0360	1.042
KUWAITI EXPORT	.0291	.4320	.0166	.0272	.2149	.1533	.1328	.0360	1.042
IRAQI	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
IRANIAN LIGHT	.0274	.4067	.0210	.0385	.2036	.1225	.1063	.0360	1.042
IRANIAN HEAVY	.0279	.4137	.0147	.0263	.2408	.1499	.1326	.0360	1.042
MID-EASTERN MIX	.0281	.4165	.0218	.0314	.2547	.1358	.1177	.0360	1.042
LIBYAN	.0323	.4800	.0211	.0323	.2543	.0985	.0875	.0360	1.042
ALGERIAN	.0324	.4804	.0269	.0312	.2467	.1004	.0880	.0360	1.042
NIGERIAN & GABON	.0369	.5479	.0165	.0346	.2213	.0765	.0722	.0360	1.042
INDONESIAN	.0303	.4492	.0000	.0209	.2554	.1255	.1166	.0360	1.042
ECUADORIAN	.0355	.5267	.0277	.0281	.1772	.1112	.0996	.0360	1.042
VENEZUELAN MIX	.0276	.4098	.0122	.0256	.1818	.1865	.1624	.0360	1.042
MEXICAN	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
RUSSIAN EXPORT	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
CANADIAN MIX	.0301	.4465	.0170	.0255	.2232	.1399	.1237	.0360	1.042
EGYPTIAN/SYRIAN	.0281	.4172	.0150	.0267	.2415	.1473	.1302	.0360	1.042
ANGOLA/CONGO/ZAIRE	.0303	.4492	.0080	.0209	.2554	.1255	.1166	.0360	1.042
BOLIVIAN/PERUVIAN	.0324	.4804	.0269	.0312	.2467	.1004	.0880	.0360	1.042
NORWEGIAN	.0345	.5127	.0122	.0302	.2274	.0985	.0903	.0360	1.042
SOUTH ASIAN	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
TRINIDAD	.0345	.5127	.0122	.0302	.2274	.0985	.0903	.0360	1.042
UNITED KINGDOM	.0286	.4248	.0169	.0324	.2666	.1260	.1106	.0360	1.042
SYNTHETIC CRUDE	.0356	.5280	.0022	.0374	.3050	.0493	.0484	.0360	1.042
ALASKAN NORTH SLOPE	.0335	.4969	.0108	.0246	.1899	.1315	.1188	.0360	1.042
SHALE OIL	.0356	.5280	.0022	.0374	.3050	.0493	.0484	.0360	1.042
LOUISIANA ONSHORE	.0302	.4488	.0084	.0311	.3008	.0963	.0904	.0360	1.042
LOUISIANA OFFSHORE	.0302	.4488	.0084	.0311	.3008	.0963	.0904	.0360	1.042
TEXAS GULF COAST	.0274	.4063	.0087	.0429	.3483	.0901	.0822	.0360	1.042
EAST TEXAS MIX	.0350	.5188	.0256	.0282	.2129	.0971	.0885	.0360	1.042
WEST TEXAS MIX	.0334	.4955	.0210	.0347	.2605	.0844	.0764	.0360	1.042
PAD II INDIGENOUS	.0310	.4603	.0287	.0327	.2500	.1084	.0948	.0360	1.042
PAD I INDIGENOUS	.0310	.4600	.0150	.0311	.2816	.0978	.0895	.0360	1.042
OKLAHOMA MIX	.0318	.4726	.0161	.0364	.2851	.0865	.0773	.0360	1.042

(CONTINUED)

TABLE 2: BARRELS OF REFINERY PRODUCTS PRODUCED PER BARREL OF CRUDE CONSUMED

CRUDE TYPE	REFINERY REGION 7							
	LIQUIFIED PETROLEUM GASSES	GASOLINE	NAPHTHA	JET FUEL	DISTILLATES	RESIDUAL	OTHER PETROLEUM PRODUCTS	TOTAL REFINERY PRODUCT
ARABIAN LIGHT	.0192	.4807	.0132	.0455	.2512	.0856	.1125	1.043
ARABIAN HEAVY	.0187	.4687	.0086	.0314	.2050	.1187	.1568	1.043
KUWAITI EXPORT	.0196	.4912	.0131	.0385	.2039	.1055	.1361	1.043
IRAQI	.0192	.4807	.0132	.0455	.2512	.0856	.1125	1.043
IRANIAN LIGHT	.0183	.4597	.0164	.0541	.2674	.0838	.1083	1.043
IRANIAN HEAVY	.0188	.4710	.0116	.0374	.2296	.1030	.1366	1.043
MID-EASTERN MIX	.0188	.4704	.0172	.0445	.2422	.0939	.1209	1.043
LIBYAN	.0210	.5272	.0166	.0456	.2408	.0672	.0895	1.043
ALGERIAN	.0211	.5298	.0211	.0439	.2333	.0689	.0898	1.043
NIGERIAN & GABON	.0236	.5915	.0129	.0484	.2079	.0502	.0733	1.043
INDONESIAN	.0207	.5190	.0062	.0288	.2361	.0807	.1165	1.043
ECUADORIAN	.0232	.5809	.0217	.0394	.1668	.0747	.1013	1.043
VENEZUELAN MIX	.0188	.4700	.0097	.0366	.1746	.1298	.1685	1.043
MEXICAN	.0192	.4807	.0132	.0455	.2512	.0856	.1125	1.043
RUSSIAN EXPORT	.0192	.4807	.0132	.0455	.2512	.0856	.1125	1.043
CANADIAN MIX	.0201	.5045	.0134	.0361	.2117	.0955	.1267	1.043
EGYPTIAN/SYRIAN	.0189	.4739	.0119	.0379	.2302	.1011	.1341	1.043
ANGOLA/CONGO/ZAIRE	.0207	.5190	.0062	.0288	.2361	.0807	.1165	1.043
BOLIVIAN/PERUVIAN	.0211	.5298	.0211	.0439	.2333	.0689	.0898	1.043
NORWEGIAN	.0225	.5630	.0095	.0423	.2136	.0654	.0916	1.043
SOUTH ASIAN	.0192	.4807	.0132	.0455	.2512	.0856	.1125	1.043
TRINIDAD	.0225	.5630	.0095	.0423	.2136	.0654	.0916	1.043
UNITED KINGDOM	.0192	.4807	.0132	.0455	.2512	.0856	.1125	1.043
SYNTHETIC CRUDE	.0226	.5670	.0017	.0520	.2844	.0314	.0488	1.043
ALASKAN NORTH SLOPE	.0221	.5546	.0084	.0346	.1790	.0881	.1210	1.043
WYOMING MIX	.0223	.5580	.0178	.0384	.2022	.0716	.0976	1.043
SHALE OIL	.0226	.5670	.0017	.0520	.2844	.0314	.0488	1.043
LOUISIANA ONSHORE	.0202	.5058	.0065	.0430	.2795	.0622	.0907	1.043
LOUISIANA OFFSHORE	.0202	.5058	.0065	.0430	.2795	.0622	.0907	1.043
TEXAS GULF COAST	.0179	.4493	.0068	.0604	.3290	.0605	.0839	1.043
EAST TEXAS MIX	.0227	.5697	.0200	.0396	.2008	.0650	.0901	1.043
WEST TEXAS MIX	.0216	.5403	.0165	.0488	.2459	.0570	.0779	1.043
PAD II INDIGENOUS	.0203	.5097	.0226	.0463	.2372	.0746	.0972	1.043
PAD I INDIGENOUS	.0205	.5142	.0116	.0434	.2633	.0645	.0904	1.043
OKLAHOMA MIX	.0207	.5180	.0126	.0512	.2685	.0584	.0787	1.043
PAD II HEAVY CRUDE	.0194	.4859	.0103	.0812	.1773	.2339	.0350	1.043

SOURCE : REFINERY AND PETROCHEMICAL MODELLING SYSTEM (RPMS) DATA BASE, OWNED BY BONNER & MOORE ASSOCIATES, INC., WASHINGTON, D.C.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS, APPLIED ANALYSIS, EIA.

TABLE 3: RELATIVE PRODUCT PRICING RELATIONSHIPS

MINIMUM PRICE DIFFERENTIAL	PRODUCT PRICE COEFFICIENT	PRODUCT PRICE OF	PRODUCT PRICE COEFFICIENT	PRODUCT PRICE OF	VOLUME COST COEFFICIENT	VOLUME DEVIATION COSTS	MAXIMUM PRICE DIFFERENTIAL
.570	<= (1.000 X	GASOLINE)	- (1.000 X	NAPHTHA)			<= .670
.570	<= -(1.000 X	NAPHTHA)	+ (1.000 X	GASOLINE)			<= .670
1.141	<= (1.000 X	GASOLINE)	- (.942 X	JET FUEL)	+ (.058 X	VOL. COST)	<= 1.238
1.211	<= -(1.000 X	JET FUEL)	+ (1.061 X	GASOLINE)	+ (.062 X	VOL. COST)	<= 1.314
2.182	<= (1.000 X	GASOLINE)	- (.901 X	DISTILLATE)	+ (.099 X	VOL. COST)	<= 2.277
2.422	<= -(1.000 X	DISTILLATE)	+ (1.109 X	GASOLINE)	+ (.110 X	VOL. COST)	<= 2.527
4.085	<= (1.000 X	GASOLINE)	- (.835 X	RESIDUAL)	+ (.165 X	VOL. COST)	<= 4.177
4.894	<= -(1.000 X	RESIDUAL)	+ (1.197 X	GASOLINE)	+ (.198 X	VOL. COST)	<= 5.004
2.185	<= (1.000 X	GASOLINE)	- (.875 X	OTHER)	+ (.125 X	VOL. COST)	<= 2.278
2.498	<= -(1.000 X	OTHER)	+ (1.143 X	GASOLINE)	+ (.143 X	VOL. COST)	<= 2.605
4.083	<= (1.000 X	GASOLINE)	- (.875 X	STILL GAS)	+ (.125 X	VOL. COST)	<= 4.177
4.668	<= -(1.000 X	STILL GAS)	+ (1.143 X	GASOLINE)	+ (.143 X	VOL. COST)	<= 4.775
.521	<= (1.000 X	NAPHTHA)	- (.942 X	JET FUEL)	+ (.058 X	VOL. COST)	<= .618
.554	<= -(1.000 X	JET FUEL)	+ (1.061 X	NAPHTHA)	+ (.062 X	VOL. COST)	<= .657
1.562	<= (1.000 X	NAPHTHA)	- (.901 X	DISTILLATE)	+ (.099 X	VOL. COST)	<= 1.657
1.734	<= -(1.000 X	DISTILLATE)	+ (1.109 X	NAPHTHA)	+ (.110 X	VOL. COST)	<= 1.839
3.465	<= (1.000 X	NAPHTHA)	- (.835 X	RESIDUAL)	+ (.165 X	VOL. COST)	<= 3.558
4.151	<= -(1.000 X	RESIDUAL)	+ (1.197 X	NAPHTHA)	+ (.198 X	VOL. COST)	<= 4.262
1.565	<= (1.000 X	NAPHTHA)	- (.875 X	OTHER)	+ (.125 X	VOL. COST)	<= 1.658
1.789	<= -(1.000 X	OTHER)	+ (1.143 X	NAPHTHA)	+ (.143 X	VOL. COST)	<= 1.896
3.463	<= (1.000 X	NAPHTHA)	- (.875 X	STILL GAS)	+ (.125 X	VOL. COST)	<= 3.556
3.959	<= -(1.000 X	STILL GAS)	+ (1.143 X	NAPHTHA)	+ (.143 X	VOL. COST)	<= 4.066
1.054	<= (1.000 X	JET FUEL)	- (.957 X	DISTILLATE)	+ (.043 X	VOL. COST)	<= 1.153
1.102	<= -(1.000 X	DISTILLATE)	+ (1.045 X	JET FUEL)	+ (.045 X	VOL. COST)	<= 1.205
3.076	<= (1.000 X	JET FUEL)	- (.886 X	RESIDUAL)	+ (.114 X	VOL. COST)	<= 3.170
3.471	<= -(1.000 X	RESIDUAL)	+ (1.128 X	JET FUEL)	+ (.128 X	VOL. COST)	<= 3.577
3.073	<= (1.000 X	JET FUEL)	- (.929 X	STILL GAS)	+ (.071 X	VOL. COST)	<= 3.170
3.309	<= -(1.000 X	STILL GAS)	+ (1.076 X	JET FUEL)	+ (.077 X	VOL. COST)	<= 3.413

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(CONTINUED)

TABLE 3: RELATIVE PRODUCT PRICING RELATIONSHIPS

MINIMUM PRICE DIFFERENTIAL	PRODUCT PRICE COEFFICIENT	PRODUCT PRICE OF	PRODUCT PRICE COEFFICIENT	PRODUCT PRICE OF	VOLUME COST COEFFICIENT	VOLUME DEVIATION COSTS	MAXIMUM PRICE DIFFERENTIAL
1.058 1.139	<= (1.000 X <= -(1.000 X	JET FUEL) OTHER)	- (.929 X + (1.076 X	OTHER) JET FUEL)	+ (.071 X + (.077 X	VOL. COST) VOL. COST)	<= 1.154 <= 1.243
2.063 2.227	<= (1.000 X <= -(1.000 X	DISTILLATE) RESIDUAL)	- (.927 X + (1.079 X	RESIDUAL) DISTILLATE)	+ (.073 X + (.079 X	VOL. COST) VOL. COST)	<= 2.159 <= 2.350
.046- .048-	<= (1.000 X <= -(1.000 X	DISTILLATE) OTHER)	- (.971 X + (1.030 X	OTHER) DISTILLATE)	+ (.029 X + (.030 X	VOL. COST) VOL. COST)	<= .052 <= .054
2.060 2.122	<= (1.000 X <= -(1.000 X	DISTILLATE) STILL GAS)	- (.971 X + (1.030 X	STILL GAS) DISTILLATE)	+ (.029 X + (.030 X	VOL. COST) VOL. COST)	<= 2.158 <= 2.223
2.122 2.224	<= (1.000 X <= -(1.000 X	OTHER) RESIDUAL)	- (.954 X + (1.047 X	RESIDUAL) OTHER)	+ (.046 X + (.048 X	VOL. COST) VOL. COST)	<= 2.220 <= 2.326
2.119 2.119	<= (1.000 X <= -(1.000 X	OTHER) STILL GAS)	- (1.000 X + (1.000 X	STILL GAS) OTHER)			<= 2.219 <= 2.219
.047- .049-	<= (1.000 X <= -(1.000 X	STILL GAS) RESIDUAL)	- (.954 X + (1.047 X	RESIDUAL) STILL GAS)	+ (.046 X + (.048 X	VOL. COST) VOL. COST)	<= .051 <= .053

DATA SOURCE : COSTS AND PRICE RELATIONSHIPS ARE OUTPUT FROM THE REFINERY CONVERSION
SUB-MODEL IMBEDDED IN PIES.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS,
APPLIED ANALYSIS, EIA.

TABLE 4: REFINERY CAPACITY DATA

REFINERY REGIONS	EXISTING CAPACITY	BUILD LIMITS	BUILD COSTS
	(THOUSANDS OF BARRELS PER CALENDAR DAY)	(THOUSANDS OF BARRELS PER CALENDAR DAY)	(1975 DOLLARS PER THOUSANDS OF BARRELS)
REFINERY REGION 1 - PAD 1A	1467	1224	.6062
REFINERY REGION 2 - PAD 2A	2596	369	.5563
REFINERY REGION 3 - PAD 3	6644	-	.5013
REFINERY REGION 4 - PAD 4	523	76	.5415
REFINERY REGION 5 - PAD 5	2660	530	.5512
REFINERY REGION 6 - PAD 1B	250	377	.6062
REFINERY REGION 7 - PAD 2B	1201	205	.5563

DATA SOURCE : CAPACITY BOUNDS BASED ON DATA PUBLISHED IN FEA'S "TRENDS IN REFINERY CAPACITY AND UTILIZATION", BY E.L. PEER AND F.V. MARSIK, OFFICE OF OIL & GAS, FEA, 1975. CAPACITY COSTS DERIVED FROM REFERENCES IN "OIL & GAS JOURNAL".

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS, EIA.

SYNTHETICS, SHALE AND SOLAR/GEOTHERMAL DATA

This section contains data tables for three energy sources: synthetics, shale and solar/geothermal. These are three of the smaller supply sectors in PIES and are also referred to as "New and Emerging Technologies" in the 1978 Annual Administrator's Report.

In the synthetics data tables, \$/BOE means dollars per barrel of oil equivalents, MBOE/D means thousands of barrels of oil equivalents per day, and M\$/B/D means thousands of dollars per barrel per day. The other units are the usual standard units.

Synthetics Data

This section contains data from the synthetics analyses performed by DOE. These analyses yield figures relating to the production of synthetic fuels from high sulfur coal. The four modes of synthetic production permitted are: crude oil from coal, natural gas from coal, electricity from low Btu fuel gas (which in turn is produced from coal) , and "syngas from other." The latter models synthetic natural gas production from naphtha.

There are four tables per target year containing the price, production and capital data for synthetic fuels, for both the mid-range supply and high growth supply scenarios.

The first table in each group gives production data for the conversion of coal to synthetic crude, syncrude. This conversion takes place in coal regions, which are the rows. Only three coal regions contain facilities for the production of syncrude.

The second table in each group gives data for the conversion of high Btu gas from coal by coal region. The third table gives the production of low and medium Btu gas by utility region. This synthetic gas is converted to electricity in the utility regions.

The last synthetics data table in each group contains data for the conversion of synthetic gas from sources other than coal. This activity takes place in demand regions. The other category refers to naphtha, a petroleum product produced in the refinery regions.

Shale Data

Shale is a synthetic fuel, but is input to PIES by a separate process. One table is given for shale production. The table has production, cost and capital requirement data for the target years 1985 and 1990.

Solar/Geothermal Data

There are four tables of solar and geothermal input data. They show price, quantity and capital data for geothermal, wind, solar thermal, and solar photovoltaic energy sources by DOE region for both 1985 and 1990.

SYNTHETICS INPUT DATA
1978 ADMINISTRATOR'S ANNUAL REPORT

TABLE 1: PRODUCTION OF SYNTHETIC CRUDE FROM COAL IN 1985
BY COAL REGION

COAL REGION	-----MIDRANGE SUPPLY-----			-----HIGH GROWTH SUPPLY-----		
	PRICE \$/BARREL	PRODUCTION LEVEL MB/D	CAPITAL M\$/B/D	PRICE \$/BARREL	PRODUCTION LEVEL MB/D	CAPITAL M\$/B/D
NORTHERN APPLACHIAN	19.32		13.60	19.32		13.60
CENTRAL APPLACHIAN						
SOUTHERN APPLACHIAN						
MIDWEST	19.32		13.60	19.32		13.60
CENTRAL WEST						
GULF						
N.E. GREAT PLAINS						
N.W. GREAT PLAINS	19.32		13.60	19.32		13.60
ROCKIES						
SOUTHWEST						
NORTHWEST						
ALASKA						

DATA SOURCES : DOE ESTIMATES DEVELOPED IN CONJUNCTION WITH THE FOLLOWING STUDY:
"SYNTHETICS MARKET POTENTIAL", INSTITUTE OF GAS TECHNOLOGY, IIT CENTER, CHICAGO,
ILLINOIS, PREPARED FOR THE U.S. FEA UNDER CONTRACT P-03-77-5810-0, JANUARY, 1979.

OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF
ENERGY USE ANALYSIS, EIA.

TABLE 2: PRODUCTION OF HIGH BTU GAS FROM COAL IN 1985
BY COAL REGION

COAL REGION	-----MIDRANGE SUPPLY-----			-----HIGH GROWTH SUPPLY-----		
	PRICE \$/BOE	PRODUCTION LEVEL MBOE/D	CAPITAL M\$/B/D	PRICE \$/BOE	PRODUCTION LEVEL MBOE/D	CAPITAL M\$/B/D
NORTHERN APPLACHIAN				20.98		16.30
CENTRAL APPLACHIAN	20.98		16.30	20.98		16.30
SOUTHERN APPLACHIAN				20.98		16.30
MIDWEST				20.98		16.30
CENTRAL WEST						
GULF						
N.E. GREAT PLAINS	21.75	23.50	23.00	21.75	35.30	23.00
N.W. GREAT PLAINS	20.98		16.30	20.98		16.30
ROCKIES				20.98		16.30
SOUTHWEST	21.75	23.50	23.00	21.75	35.30	23.00
NORTHWEST						
ALASKA						

DATA SOURCES : DOE ESTIMATES DEVELOPED IN CONJUNCTION WITH THE FOLLOWING STUDY:
"SYNTHETICS MARKET POTENTIAL", INSTITUTE OF GAS TECHNOLOGY, IIT CENTER, CHICAGO,
ILLINOIS, PREPARED FOR THE U.S. FEA UNDER CONTRACT P-03-77-5810-0, JANUARY, 1979.

OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF
ENERGY USE ANALYSIS, EIA.

TABLE 3: PRODUCTION OF LOW AND MEDIUM BTU SYNTHETIC GAS FROM COAL IN 1985
BY UTILITY REGION

UTILITY REGION	-----MIDRANGE SUPPLY-----			-----HIGH GROWTH SUPPLY-----		
	PRICE \$/BOE	PRODUCTION LEVEL MBOE/D	CAPITAL M\$/B/D	PRICE \$/BOE	PRODUCTION LEVEL MBOE/D	CAPITAL M\$/B/D
NW-ENG.						
NY/NJ						
MID-ATL	23.30		21.20	16.80	7.83	13.00
S.-ATL	23.30		21.20	16.80	7.83	13.00
MIDWEST	23.30		21.20	16.80	7.83	13.00
S.-WEST	23.30		21.20	23.30		21.20
CENTRAL	23.30		21.20	23.30		21.20
N-CNTRL	23.30		21.20	23.30		21.20
WEST						
N.-WEST						

DATA SOURCES : DOE ESTIMATES DEVELOPED IN CONJUNCTION WITH THE FOLLOWING STUDY:
"SYNFUELS MARKET POTENTIAL", INSTITUTE OF GAS TECHNOLOGY, ITT CENTER, CHICAGO,
ILLINOIS, PREPARED FOR THE U.S. FEA UNDER CONTRACT P-03-77-5810-0, JANUARY, 1979.

OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF
ENERGY USE ANALYSIS, EIA.

TABLE 4: PRODUCTION OF SYNTHETIC GAS FROM SOURCES OTHER THAN COAL IN 1985
BY DEMAND REGION

DEMAND REGION	-----MIDRANGE SUPPLY-----				-----HIGH GROWTH SUPPLY-----			
	PRICE \$/MCF	-AVAILABLE SUPPLY- NEW MMSCF/D	EXISTING	CAPITAL	PRICE \$/MCF	-AVAILABLE SUPPLY- NEW MMSCF/D	EXISTING	CAPITAL
NW-ENG.	.47		143.28		.47		143.28	
NY/NJ	.47	258.93	228.78		.47	258.93	228.78	
MID-ATL	.47	258.84	341.01		.47	258.84	341.01	
S.-ATL								
MIDWEST	.47		750.78		.47		750.78	
S.-WEST								
CENTRAL								
N-CNTRL								
WEST	.47	130.68	13.05		.47	130.68	13.05	
N.-WEST								

DATA SOURCES : DOE ESTIMATES DEVELOPED IN CONJUNCTION WITH THE FOLLOWING STUDY:
"SYNFUELS MARKET POTENTIAL", INSTITUTE OF GAS TECHNOLOGY, ITT CENTER, CHICAGO,
ILLINOIS, PREPARED FOR THE U.S. FEA UNDER CONTRACT P-03-77-5810-0, JANUARY, 1979.

OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF
ENERGY USE ANALYSIS, EIA.

SYNTHETICS INPUT DATA
1978 ADMINISTRATOR'S ANNUAL REPORT

TABLE 1: PRODUCTION OF SYNTHETIC CRUDE FROM COAL IN 1990
BY COAL REGION

COAL REGION	-----MIDRANGE SUPPLY-----			-----HIGH GROWTH SUPPLY-----		
	PRICE \$/BARREL	PRODUCTION LEVEL MB/D	CAPITAL M\$/B/D	PRICE \$/BARREL	PRODUCTION LEVEL MB/D	CAPITAL M\$/B/D
NORTHERN APPLACHIAN	22.62	9.40	16.00	22.62	28.24	16.00
CENTRAL APPLACHIAN						
SOUTHERN APPLACHIAN						
MIDWEST	22.62	9.40	16.00	22.62	28.24	16.00
CENTRAL WEST						
GULF						
N.E. GREAT PLAINS						
N.W. GREAT PLAINS	22.62	4.70	16.00	22.62	14.12	16.00
ROCKIES						
SOUTHWEST						
NORTHWEST						
ALASKA						

DATA SOURCES : DOE ESTIMATES DEVELOPED IN CONJUNCTION WITH THE FOLLOWING STUDY:
"SYNFUELS MARKET POTENTIAL", INSTITUTE OF GAS TECHNOLOGY, ITT CENTER, CHICAGO,
ILLINOIS, PREPARED FOR THE U.S. FEA UNDER CONTRACT P-03-77-5810-0, JANUARY, 1978.

OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF
ENERGY USE ANALYSIS, EIA.

TABLE 2: PRODUCTION OF HIGH BTU GAS FROM COAL IN 1990
BY COAL REGION

COAL REGION	-----MIDRANGE SUPPLY-----			-----HIGH GROWTH SUPPLY-----		
	PRICE \$/BOE	PRODUCTION LEVEL MBOE/D	CAPITAL M\$/B/D	PRICE \$/BOE	PRODUCTION LEVEL MBOE/D	CAPITAL M\$/B/D
NORTHERN APPLACHIAN				21.75	29.57	23.00
CENTRAL APPLACHIAN				21.75	14.79	23.00
SOUTHERN APPLACHIAN						
MIDWEST				21.75	29.57	23.00
CENTRAL WEST						
GULF						
N.E. GREAT PLAINS	21.75	36.10	23.00	21.75	36.10	23.00
N.W. GREAT PLAINS	21.75	36.10	23.00	21.75	65.67	23.00
ROCKIES						
SOUTHWEST	21.75	36.10	23.00	21.75	36.10	23.00
NORTHWEST						
ALASKA						

DATA SOURCES : DOE ESTIMATES DEVELOPED IN CONJUNCTION WITH THE FOLLOWING STUDY:
"SYNFUELS MARKET POTENTIAL", INSTITUTE OF GAS TECHNOLOGY, ITT CENTER, CHICAGO,
ILLINOIS, PREPARED FOR THE U.S. FEA UNDER CONTRACT P-03-77-5810-0, JANUARY, 1978.

OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF
ENERGY USE ANALYSIS, EIA.

TABLE 3: PRODUCTION OF LOW AND MEDIUM BTU SYNTHETIC GAS FROM COAL IN 1990
BY UTILITY REGION

UTILITY REGION	-----MIDRANGE SUPPLY-----			----HIGH GROWTH SUPPLY----		
	PRICE \$/BOE	PRODUCTION LEVEL MBOE/D	CAPITAL M\$/D/D	PRICE \$/BOE	PRODUCTION LEVEL MBOE/D	CAPITAL M\$/D/D
NW-ENG.						
NY/NJ						
MID-ATL	16.82	16.50	13.00	16.82	22.20	13.00
S.-ATL	16.82	8.25	13.00	16.82	14.80	13.00
MIDWEST	16.82	8.25	13.00	16.82	14.80	13.00
S.-WEST	23.30		21.20	16.82		13.00
CENTRAL	23.30		21.20	16.82		13.00
N-CNTRL	16.82		13.00	16.82		13.00
WEST						
N.-WEST						

DATA SOURCES : DOE ESTIMATES DEVELOPED IN CONJUNCTION WITH THE FOLLOWING STUDY:
"SYNFUELS MARKET POTENTIAL", INSTITUTE OF GAS TECHNOLOGY,ITT CENTER, CHICAGO,
ILLINOIS, PREPARED FOR THE U.S. PEA UNDER CONTRACT P-03-77-5810-0, JANUARY, 1978.

OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF
ENERGY USE ANALYSIS, EIA.

TABLE 4: PRODUCTION OF SYNTHETIC GAS FROM SOURCES OTHER THAN COAL IN 1990
BY DEMAND REGION

DEMAND REGION	-----MIDRANGE SUPPLY-----			----HIGH GROWTH SUPPLY----		
	PRICE \$/MCF	-AVAILABLE SUPPLY- NEW EXISTING MMSCF/D	CAPITAL	PRICE \$/MCF	-AVAILABLE SUPPLY- NEW EXISTING MMSCF/D	CAPITAL
NW-ENG.	.47		143.28	.47		143.28
NY/NJ	.47	258.93	228.78	.47	258.93	228.78
MID-ATL	.47	258.84	341.01	.47	258.84	341.01
S.-ATL						
MIDWEST	.47		750.78	.47		750.78
S.-WEST						
CENTRAL						
N-CNTRL						
WEST	.47	130.68	13.05	.47	130.68	13.05
N.-WEST						

DATA SOURCES : DOE ESTIMATES DEVELOPED IN CONJUNCTION WITH THE FOLLOWING STUDY:
"SYNFUELS MARKET POTENTIAL", INSTITUTE OF GAS TECHNOLOGY,ITT CENTER, CHICAGO,
ILLINOIS, PREPARED FOR THE U.S. PEA UNDER CONTRACT P-03-77-5810-0, JANUARY, 1978.

OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF
ENERGY USE ANALYSIS, EIA.

SHALE INPUT DATA
1978 ADMINISTRATOR'S ANNUAL REPORT

SHALE PRODUCTION LEVELS, COSTS AND CAPITAL REQUIREMENTS FOR 1985 AND 1990 ARE PRESENTED BELOW.
ALL SHALE FIGURES ARE EXOGENOUS INPUTS TO THE MODEL.

TABLE 1: SHALE INPUT DATA

	PRODUCTION LEVEL (THOUSAND BARRELS/DAY)	COST (1975 \$/BARREL)	CAPITAL REQUIREMENT (THOUSAND 1975 \$/BARREL/DAY)
1985	47.0	15.08	11.0
1990	164.8	15.08	12.0

DATA SOURCES : DOE ESTIMATES DEVELOPED IN CONJUNCTION WITH THE FOLLOWING STUDY:
"SYNFUELS MARKET POTENTIAL", INSTITUTE OF GAS TECHNOLOGY, ITC CENTER, CHICAGO,
ILLINOIS, PREPARED FOR THE U.S. FEA UNDER CONTRACT P-03-77-5810-0, JANUARY, 1973.

OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF
ENERGY USE ANALYSIS, EIA.

SOLAR/GEOTHERMAL INPUT DATA
1978 ADMINISTRATOR'S ANNUAL REPORT

TABLE 1 : GEOTHERMAL

	1985			1990		
	QUANTITY (MMKWH/DAY)	PRICE (MILLS/KWH)	CAPITAL (\$/KWH)	QUANTITY (MMKWH/DAY)	PRICE (MILLS/KWH)	CAPITAL (\$/KWH)
SOUTHWEST	55.20	19.30		24.00	19.30	
N.-CENTRAL				21.60	19.30	
WEST				64.80	19.30	
NORTHWEST				19.20	19.30	

TABLE 2 : WIND

	1985			1990		
	QUANTITY (MMKWH/DAY)	PRICE (MILLS/KWH)	CAPITAL (\$/KWH)	QUANTITY (MMKWH/DAY)	PRICE (MILLS/KWH)	CAPITAL (\$/KWH)
NEW ENG.	1.72	27.00	29.17	13.72	25.00	27.08
NY/NJ	1.72	27.00	29.17	13.72	25.00	27.08
MIDWEST	1.72	27.00	29.17	13.72	25.00	27.08
SOUTHWEST	1.72	27.00	29.17	13.72	25.00	27.08

TABLE 3 : SOLAR THERMAL

	1985			1990		
	QUANTITY (MMKWH/DAY)	PRICE (MILLS/KWH)	CAPITAL (\$/KWH)	QUANTITY (MMKWH/DAY)	PRICE (MILLS/KWH)	CAPITAL (\$/KWH)
SOUTHWEST	.46	114.00	125.00	.46	77.00	83.33
N.-CENTRAL	.46	114.00	125.00	.46	77.00	83.33
WEST	.46	114.00	125.00	.46	77.00	83.33

TABLE 4 : SOLAR PHOTOVOLTAIC

	1985			1990		
	QUANTITY (MMKWH/DAY)	PRICE (MILLS/KWH)	CAPITAL (\$/KWH)	QUANTITY (MMKWH/DAY)	PRICE (MILLS/KWH)	CAPITAL (\$/KWH)
SOUTHWEST				6.86	57.00	62.50
N.-CENTRAL				6.86	57.00	62.50
WEST				6.86	57.00	62.50

DATA SOURCES : SOLAR THERMAL : ORIGINAL DATA BASED ON 1985 PROJECTIONS OF ERDA-49, DEFINITION REPORT OF THE NATIONAL SOLAR ENERGY RESEARCH, DEVELOPMENT AND DEMONSTRATION PROGRAM, JUNE 1975. PRESENT VALUES PREPARED BY DOE.
PHOTOVOLTAIC : "RESULTS OF AN ANALYSIS OF SEVERAL POTENTIAL PHOTOVOLTAIC SOLAR SYSTEM INTRODUCTION SCENARIOS, MARTIN WOLF, DOE, JANUARY, 1978
WIND : "WIND ENERGY USE IN THE UNITED STATES TO THE YEAR 2000", MARSHALL F. HERRIAM, EL CERRITO, CALIFORNIA, PREPARED FOR THE FEA IN OCTOBER, 1977.
THE ENTRIES IN THE TABLE ARE ESTIMATES DERIVED FROM THIS SOURCE
SOLAR HEATING : "SOLAR HEATING AND COOLING OF BUILDINGS (SHACOB) MODEL, ARTHUR D. LITTLE, INC. PREPARED FOR THE FEA TASK FORCE ON SOLAR ENERGY COMMERCIALIZATION, SEPT. 1977, WASHINGTON, D.C. FEA CONTRACT NUMBER CR-05-70066-00.
GEOTHERMAL : BASED ON PROJECTIONS AND GROWTH RATES FROM ERDA BUT DEVELOPED INTERNALLY BY DOE.
OFFICE RESPONSIBLE : CONSERVATION AND RENEWABLE RESOURCES DIVISION, OFFICE OF ENERGY USE ANALYSIS, EIA.

TRANSPORTATION DATA

The following tables give the transportation standard table inputs to the PIES Integrating Model as they existed for the Administrator's Annual Report of 1978. Transportation networks are described for coal, natural gas, crude oil and petroleum products. Links are also given for the transmission of electricity within DOE regions and the transportation of nuclear fuel.

Most data sources are given in the text preceding each group of tables. Additional sources and information are contained in footnotes. Note that data sources given in 1973 dollars have been converted to 1975 dollars by the conversion factor 1.212, where necessary.

TRANSPORTATION DATA
INPUTS TO THE PIPS INTEGRATING MODEL
1978 ANNUAL ADMINISTRATORS REPORT

THE TRANSPORTATION SUBMODEL IN PIPS CONSISTS OF SEVERAL INDEPENDENT NETWORKS THAT ARE DISTINGUISHED BY THE MATERIAL TRANSPORTED AND THE MODE OF TRANSPORTATION. THE MOST IMPORTANT OF THESE NETWORKS ARE LISTED BELOW.

MATERIAL -----	MODE -----
COAL	RAIL AND BARGE
NATURAL GAS	PIPELINE
CRUDE OIL	PIPELINE
CRUDE OIL	BARGE AND TANKER
PETROLEUM PRODUCTS	PIPELINE
PETROLEUM PRODUCTS	BARGE AND TANKER

IN ADDITION, THE MODEL CONTAINS LINKS FOR THE TRANSMISSION OF ELECTRICITY WITHIN DOE REGIONS AND LINKS FOR THE TRANSPORTATION OF NUCLEAR FUEL. MOST OF THE TRANSPORTATION NETWORKS SHIP DIRECTLY FROM ORIGIN TO FINAL DESTINATION. ONLY ALASKAN AND IMPORTED CRUDE OIL ARE TRANSHIPPED THROUGH INTERMEDIATE LOCATIONS.

BESIDES ORIGIN AND DESTINATION, THE ONLY DATA ASSOCIATED WITH MOST LINKS IS UNIT COST. HOWEVER, NATURAL GAS LINKS ALSO INCLUDE A LOSS FACTOR TO ACCOUNT FOR FUEL CONSUMPTION. THE LINK REPRESENTING THE TAPS PIPELINE IS THE ONLY CAPACITATED LINK IN THE MODEL.

ALL COSTS ARE REPORTED IN 1975 DOLLARS.

THE COAL TRANSPORTATION NETWORK IS DESCRIBED IN TABLES 1 AND 2. DEMAND FOR COAL IS DETERMINED BY THE PIES DEMAND AND UTILITIES MODELS FOR EACH DOE REGION. HOWEVER, SINCE TRANSPORTATION CHARGES COMPRISE A SIGNIFICANT FRACTION OF THE DELIVERED COST OF COAL, IT IS IMPORTANT THAT ORIGINS AND DESTINATIONS BE SUFFICIENTLY DISAGGREGATE TO ALLOW ACCURATE COSTING. FOR THIS REASON, WITH JUST TWO EXCEPTIONS, COAL DEMAND IN EACH DOE REGION IS SPLIT AMONG REPRESENTATIVE CITIES IN THE REGION AND LINKS ARE PROVIDED FROM THE COAL REGIONS TO THESE CITIES. THE DEMAND SPLITTING IS DONE IN FIXED PROPORTIONS BASED UPON POPULATIONS OF STANDARD METROPOLITAN AREAS. THE TRANSPORTATION COSTS ARE CALCULATED FOR THE CHEAPEST PATH ALONG AVAILABLE RAIL AND BARGE ROUTES FROM CENTROIDS IN THE COAL REGIONS TO THE DESTINATION CITIES. RAIL COSTS ASSUME A FIXED CHARGE OF \$1.60/SHORT TON AND A MILEAGE CHARGE OF \$.0094/TON-MILE (FROM LINEAR REGRESSION ANALYSIS OF 100 CAR UNIT TRAIN OPERATIONS USING DATA FROM THE ICC REPORT 'INVESTIGATION OF FREIGHT RATE STRUCTURE -COAL'*). THESE CHARGES ARE FOR UNIT TRAIN OPERATIONS AND APPLY TO COAL MOVEMENTS TO THE ELECTRIC UTILITIES ONLY. OTHER COAL CONSUMERS PAY AN ADDITIONAL \$2.50 PER SHORT TON TO ACCOUNT FOR THE HIGHER SINGLE CAR RATES. THE BARGE COSTS ARE TAKEN FROM KEARNEY'S 'DOMESTIC WATERBORNE SHIPPING ANALYSIS' AND INFLATED BY 33% (IN REAL TERMS) TO ACCOUNT FOR INCREASED FUEL COSTS. A RAIL-TO-BARGE-TO-RAIL TRANSFER CHARGE OF \$.45/SHORT TON IS INCLUDED WHERE APPROPRIATE.**

THE TWO EXCEPTIONS ARE COAL BURNED IN MINEMOUTH PLANTS AND LIGNITE. IN THESE TWO INSTANCES, LINKS RUN DIRECTLY TO THE DOE REGIONS. COAL BURNED IN MINEMOUTH PLANTS IS CHARGED A NOMINAL COST OF \$.01/SHORT TON. THE LINKS FROM THE GULF TO THE CENTRAL STATES AND FROM THE NORTHEAST GREAT PLAINS TO THE MIDWEST AND NORTH CENTRAL STATES ARE FOR SHIPPING LIGNITE OVER SHORT DISTANCES. THE LINK TO THE MIDWEST IS ADDITIONALLY EXCEPTIONAL IN THAT IT INCLUDES A CHARGE FOR TRANSPORTING LIGNITE TO THE DAKOTAS PLUS A CHARGE FOR TRANSMITTING ELECTRICITY FROM THERE TO MINNESOTA. THIS IS THE ONLY INSTANCE OF INTER-REGIONAL TRANSMISSION OF ELECTRICITY IN THE MODEL.

*ICC REPORT NUMBER 345

**THERE IS A \$.20/TON HANDLING CHARGE TO TRANSFER FROM BARGE TO RAIL AND A \$.25/TON CHARGE TO TRANSFER FROM BARGE TO RAIL AND A \$.25/TON CHARGE TO TRANSFER FROM

TABLE 1
COAL TRANSPORTATION COSTS
(1975 DOLLARS PER SHORT TON)

COAL REGION	DESTINATION										
	BOSTON .	NEW YORK	BALT. / PHIL.	PITTS- BURGH	MIAMI .	ATLANTA .	CINCI- NATTI,S	CINCI- NATTI,N	DETROIT .	CHICAGO .	SP. LOUIS,E
N. APPLACH.	9.30	6.89	5.14	1.69	14.77	8.04	3.44	3.44	4.47	6.08	6.33
CEN. APPLACH.	9.24	6.83	5.08	6.97	11.72	4.99	4.00	4.00	8.31	5.76	4.07
S. APPLACH.	13.67	11.26	9.51	10.73	9.89	3.16	7.76	7.76	9.63	7.08	5.39
MIDWEST	12.65	10.24	8.49	5.99	11.66	7.10	3.02	3.02	6.25	3.70	2.01
CEN. WEST	15.90	13.49	11.74	9.18	14.27	8.85	6.27	6.27	7.34	4.79	3.10
GULF	19.38	16.97	15.22	13.71	14.55	8.87	10.80	10.80	11.87	9.32	7.63
NE GREAT PL.	21.14	18.73	17.11	13.75	19.64	14.22	11.64	11.64	11.91	9.36	8.47
NW GREAT PL.	24.55	22.14	20.52	17.16	23.05	17.63	15.05	15.05	15.32	12.77	11.88
ROCKIES	24.61	22.20	20.45	17.89	22.98	17.56	14.98	14.98	16.05	13.50	11.81
SOUTHWEST	27.71	25.30	23.55	21.28	23.93	17.20	18.37	18.37	19.44	16.89	15.20
NORTHWEST	33.88	31.47	29.85	26.49	32.38	26.96	24.38	24.38	24.65	22.10	21.21
ALASKA	41.79	39.38	37.76	34.40	40.29	34.87	32.29	32.29	32.56	30.01	29.12

COAL REGION	DESTINATION									
	ST. PAUL/ MINN.	NEW ORLEANS	HOUSTON .	DALLAS .	ST. LOUIS,W	KANSAS .	DENVER .	LOS ANGELES	SAN FRANCISCO	SEATTLE .
N. APPLACH.	9.80	8.00	8.28	10.76	6.33	8.52	14.49	23.70	28.11	26.20
CEN. APPLACH.	8.40	6.05	8.22	10.70	4.07	6.26	12.23	23.64	26.17	24.80
S. APPLACH.	9.72	3.35	6.76	9.24	5.39	7.58	13.55	22.18	26.59	26.12
MIDWEST	6.34	2.47	5.88	8.36	2.01	4.20	10.17	21.30	24.11	22.74
CEN. WEST	6.20	5.08	8.49	6.54	3.10	1.69	7.66	20.26	21.60	22.60
GULF	10.48	5.36	1.95	1.12	7.63	5.97	8.96	14.84	19.25	24.73
NE GREAT PL.	5.64	10.45	13.86	15.00	8.47	10.15	9.99	23.61	22.74	14.28
NW GREAT PL.	9.05	13.86	14.99	12.51	11.88	10.64	4.67	18.40	18.61	14.26
ROCKIES	12.50	13.79	14.50	12.02	11.81	10.15	4.18	12.68	13.06	15.55
SOUTHWEST	15.89	15.34	11.93	9.45	15.20	13.54	7.57	12.78	17.19	23.34
NORTHWEST	18.38	23.19	26.60	24.42	21.21	22.55	16.58	14.85	10.44	1.98
ALASKA	26.29	31.10	34.51	32.33	29.12	30.46	24.49	22.76	18.35	9.89

COAL REGION	DOE REGION					
	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL
N. APPLACH.	.01					
CEN. APPLACH.		.01				
MIDWEST			.01			
CEN. WEST				.01		
GULF					1.00	
NE GREAT PL.			2.00			1.50
NW GREAT PL.						.01

TABLE 2
FRACTION OF COAL DEMAND IN EACH DOE REGION THAT IS MET
FROM REPRESENTATIVE CITIES

CITY	DOE REGION								EXPORT
	NEW ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL WEST	N.-WEST
BOSTON	1.00								
NEW YORK		1.00							
BALT./PHIL.			.80						1.00
PITTSBURGH			.20						
MIAMI				.40					
ATLANTA				.30					
CINCINNATI,S				.30					
CINCINNATI,N					.10				
DETROIT					.25				
CHICAGO					.45				
ST. LOUIS,E					.10				
ST. PAUL/MINN.					.10				
NEW ORLEANS						.20			
HOUSTON						.35			
DALLAS						.45			
ST. LOUIS,W							.65		
KANSAS CITY							.35		
DENVER								1.00	
LOS ANGELES									.65
SAN FRANCISCO									.35
SEATTLE									1.00

DATA SOURCE : ESTIMATED FROM THE 1970 U.S. CENSUS, ROUNDED TO THE NEAREST 5%.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

TABLES 3, 4 AND 5 DESCRIBE THE NATURAL GAS TRANSPORTATION NETWORK. VOLUMES ARE ADJUSTED TO A STANDARD HEAT VALUE OF 1032 BTU/CF. UNIT COSTS ARE THE RATIO OF TOTAL TRANSPORTATION COSTS, EXCLUDING FUEL COSTS, TO VOLUME OF INPUT. LINKS CORRESPONDING TO EXISTING PIPELINES ARE COSTED AT \$.033/MCF PER 100 MILES (A WEIGHTED AVERAGE OF TRANSPORT COSTS FOR EIGHT LARGE GAS PIPELINES). USING SHORT LINE MILEAGE FROM CENTROIDS OF NPC REGIONS TO CENTROIDS OF DOE REGIONS. OTHER LINKS ARE COSTED AT \$.04/MCF PER 100 MILES (NOTIONAL). LOSSES ARE CALCULATED AT 4% PER 1000 MILES (FROM NORTHERN BORDER PIPELINE PROPOSAL*).

THE LINKS FROM THE NORTH SLOPE MODEL THE ALCAN PIPELINE, ASSUMING A 30% CONSTRUCTION COST OVERRUN, WITH THOSE LINKS TO THE EAST COAST INTENDED TO REPRESENT DELIVERY BY DISPLACEMENT. THE COST OF SERVICE ESTIMATES ARE TAKEN FROM THE FPC REPORT 'RECOMMENDATION TO THE PRESIDENT- ALASKA NATURAL GAS TRANSPORTATION SYSTEMS' (EXHIBIT IV-5), AUGMENTED BY 30% AND ADJUSTED TO GIVE REGIONAL COST ESTIMATES.

IMPORTED LNG AND CANADIAN GAS ARE ASSIGNED ZERO TRANSPORTATION CHARGES SINCE THEIR PURCHASE PRICE, AS REPORTED IN THE IMPORT TABLES, IS ALREADY THE DELIVERED CITY-GATE PRICE. THE TRANSPORTATION CHARGES SHOWN FOR MEXICAN GAS BEGIN AT THE BORDER. A BLANK ENTRY MEANS THE CORRESPONDING LINK IS NOT PROVIDED IN THE MODEL.

INTRASTATE GAS, NOT COVERED BY THE TABLES, IS TRANSPORTED AT A COST OF \$.10/MCF WITH 1% LOSS (NOTIONAL).

THE COSTS AND LOSS FACTORS IN THESE TABLES ALSO APPLY TO SYNTHETIC GAS MADE FROM COAL. SYNTHETIC GAS FROM COAL IS PRODUCED IN COAL REGIONS. THE CORRESPONDENCE BETWEEN COAL REGIONS AND NPC REGIONS GIVEN BELOW IS USED TO DETERMINE WHICH COSTS AND LOSS FACTORS APPLY.

COAL REGION	NPC REGION
-----	-----
N. APPALACHIA	APPALACHIA
CEN. APPALACHIA	APPALACHIA
S. APPALACHIA	WEST GULF BASIN
MIDWEST	MT. BASIN/INTER.
CENTRAL WEST	MIDCONTINENT
GULF	WEST GULF BASIN
NE GREAT PLAINS	EAST ROCKIES
NW GREAT PLAINS	EAST ROCKIES
ROCKIES	WEST ROCKIES
SOUTHWEST	WEST ROCKIES
NORTHWEST	PACIFIC COAST
ALASKA	SOUTH ALASKA

*"THE ALASKAN OIL DISPOSITION STUDY", A REPORT TO FEA REGION 9, SAN FRANCISCO. AUTHOR, ASIL GERZEN OF TRANSPORTATION AND ENERGY RESEARCH ASSOCIATES (TERA). UNPUBLISHED. 1976

TABLE 3
TRANSPORTATION COSTS OF DOMESTIC NATURAL GAS
(1975 DOLLARS PER THOUSAND CUBIC FEET)

NPC REGION	DOE REGION									
	NEW ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL	WEST	N.-WEST
PAC. COAST	1.41	1.37	1.33	1.19	1.01	.87	.99	.65	.16	.50
PAC. OCEAN	1.54	1.48	1.41	1.16	1.14	.83	.96	.79	.33	.74
W. ROCKIES	1.13	1.07	1.01	.79	.73	.41	.55	.26	.55	.53
E. ROCKIES	1.03	.98	.94	.84	.54	.60	.44	.23	.53	.54
W. TEXAS/E. N. MEX.	1.02	.93	.85	.52	.57	.25	.40	.50	.66	1.04
W. GULF BASIN	.87	.76	.69	.48	.59	.28	.45	.64	1.03	1.26
GULF OF MEX.	.73	.66	.60	.38	.52	.34	.50	.79	1.19	1.38
MIDCONT.	.81	.64	.60	.46	.35	.27	.20	.33	.76	.99
MI. BASIN, INT.	.57	.51	.45	.35	.23	.48	.31	.56	1.07	1.08
APPLACHIA	.51	.37	.23	.32	.25	.64	.47	.72	1.27	1.34
ATL. COAST	.59	.53	.47	.30	.63	.60	.69	.94	1.42	1.46
ATL. OCEAN	.43	.35	.29	.44	.59	.82	.72	.98	1.49	1.45
NORTH SLOPE (1985)	1.77	1.73	1.68	1.56	1.66	1.44	1.59	1.48	1.49	1.30
NORTH SLOPE (1990)	1.77	1.73	1.68	1.56	1.56	1.44	1.59	1.48	1.49	1.30
SOUTH ALASKA (1985)									.89	
SOUTH ALASKA (1990)									.89	

DATA SOURCE : "INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION MODEL FOR THE TRANSPORT OF ENERGY MATERIALS", VOLUME II, PREPARED FOR THE TASK FORCE REPORT, FEDERAL ENERGY ADMINISTRATION PROJECT INDEPENDENCE BLUEPRINT FINAL, UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, NOVEMBER, 1974 , TABLE VIII-14, PG. VIII-17.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

TABLE 4
TRANSPORTATION COSTS FOR IMPORTED NATURAL GAS
(1975 DOLLARS PER THOUSAND CUBIC FEET)

FOREIGN REGION	DOE REGION									
	NEW ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL	WEST	N.-WEST
LANDED EAST COAST	.00	.00	.00	.00	.00		.00			
LANDED WEST COAST									.00	
CANADA	.00	.00			.00			.00	.00	.00
MEXICO	.89	.78	.71	.50	.61	.30	.47	.64	1.03	1.26

DATA SOURCES : MEMORANDUM FOR THE RECORD FROM RICHARD THRASHER, MID-RANGE ANALYSIS DIVISION, OFFICE OF INTEGRATIVE ANALYSIS, EIA. SUBJECT : IMPLEMENTATION OF MEXICAN GAS; DATED 10/26/77. NOTE : A \$.02/MCF CHARGE HAS BEEN ADDED TO THE TRANSPORTATION COSTS TO ACCOUNT FOR THE FACT THAT THE LARGEST NATURAL GAS COMPANIES BUY DIRECTLY FROM GAS PIPELINES AND DO NOT PAY THE CITY-GATE CHARGE.
OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA

TABLE 5
LOSS FACTORS FOR NATURAL GAS
(PERCENT LOST)

MPC REGION	DOE REGION									
	NEW ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CENTRAL	WEST	N.-WEST
PAC. COAST	13	13	12	11	9	8	8	6	1	4
PAC. OCEAN	14	13	12	10	10	7	8	6	2	6
W. ROCKIES	10	10	9	7	6	4	5	2	5	6
E. ROCKIES	9	9	9	8	5	5	4	2	5	5
W. TEXAS/E. N. MEX.	9	8	8	5	6	2	4	5	7	10
W. GULF BASIN	9	8	7	4	6	2	4	5	9	11
GULF OF MEX.	7	6	5	2	4	2	4	6	10	12
MIDCONT.	7	7	6	4	3	2	1	3	8	9
MI. BASIN, INT.	5	4	4	3	2	4	2	5	10	10
APPLACHIA	4	3	2	3	2	6	4	6	12	13
ATL. COAST	6	5	5	2	5	5	6	9	13	14
ATL. OCEAN	3	2	1	3	4	7	6	8	13	13
NORTH SLOPE	10	10	9	6	8	4	7	6	5	5
SOUTH ALASKA									11	

THE TRANSPORTATION NETWORK FOR CRUDE OIL IS PORTRAYED IN TABLES 6 THROUGH 9. FOR LINKS CORRESPONDING TO EXISTING PIPELINES, ICC TARIFFS HAVE BEEN USED TO ESTABLISH TRANSPORTATION COSTS. GATHERING CHARGES, ALSO BASED ON ICC TARIFFS, ARE INCLUDED. OTHER PIPELINE LINKS ARE COSTED AT \$.06/BBL PER 100 MILES (NOTIONAL) PLUS GATHERING CHARGES. BARGE COSTS ARE FROM THE PEA REPORT 'INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION MODEL FOR THE TRANSPORT OF ENERGY MATERIALS, VOLUME II*'. TANKER COSTS ARE CALCULATED USING THE FORMULA

$$\text{UNIT COST} = 2 * \frac{(\text{TURN}) * (\text{PORT}) + (\text{MILEAGE} / \text{SPEED}) * (\text{SEA})}{(\text{PAYLOAD}) * (\text{SCALE})}$$

WHERE

TURN= TURNAROUND TIME IN PORT (HOURS),
 PORT= COST/HOUR OF STAYING IN PORT,
 MILEAGE= MILEAGE ONE WAY (NAUTICAL MILES),
 SPEED= SPEED IN KNOTS,
 SEA= COST/HOUR AT SEA,
 PAYLOAD= CARGO CAPACITY (TONS), AND
 SCALE= NUMBER OF BARRELS OF CRUDE PER TON.

THE FACTOR 2 IS DUE TO THE ASSUMPTION THAT THE TANKER MAKES THE RETURN TRIP EMPTY. DATA FOR USE IN THIS FORMULA ARE TAKEN FROM THE MARITIME ADMINISTRATION REPORT 'ESTIMATED VESSEL OPERATING EXPENSES- 1976'.

THE \$3.40/BBL LISTED FOR THE TRANS-ALASKAN PIPELINE SYSTEM IS THE TARIFF THE SHIPPERS WOULD HAVE TO CHARGE AT A VOLUME OF 2 MMBBL/D TO RECEIVE THE SAME RETURN AS THEY WOULD UNDER THE EXISTING AVERAGE TARIFF OF \$5.60/BBL AT A VOLUME OF 1.6 MMBBL/D. COSTS FOR THE NORTHERN TIER AND EL PASO-SOHIO ARE TAKEN FROM A STUDY BY TRANSPORTATION AND ENERGY RESEARCH ASSOCIATES ON THE DISPOSITION OF NORTH SLOPE OIL**.

CRUDE OIL SHIPPED FROM FOREIGN REGIONS IS ASSIGNED ZERO TRANSPORTATION COSTS, SINCE ACTUAL TRANSPORTATION COSTS ARE ALREADY INCLUDED IN THE PURCHASE COST, AS REPORTED IN THE IMPORT TABLES. THE COSTS OF TRANSHIPPING FOREIGN CRUDE FROM THE GULF COAST (PAD 3) INLAND ARE ICC PIPELINE TARIFFS. THE LINK FROM PAD 1A TO PAD 1B IS FOR CRUDE IMPORTS ACTUALLY LANDING IN PAD 1B. A BLANK ENTRY MEANS THE CORRESPONDING LINK IS NOT AVAILABLE IN THE MODEL.

THE COSTS IN THESE TABLES ALSO APPLY TO SYNTHETIC OIL MADE FROM COAL. THE CORRESPONDENCE BETWEEN COAL REGIONS AND NPC REGIONS GIVEN ABOVE FOR SYNTHETIC GAS IS USED TO DETERMINE WHICH COSTS APPLY.

*APPLIES TO PETROLEUM PRODUCTS ONLY.

**"THE ALASKAN OIL DISPOSITION STUDY", A REPORT TO PEAREGION 9, SAN FRANCISCO. AUTHOR, ASIL GERZEN OF TRANSPORTATION AND ENERGY RESEARCH ASSOCIATES (TERA). UNPUBLISHED. 1976

TABLE 6
COSTS OF TRANSPORTING CRUDE OIL BY PIPELINE
(1975 DOLLARS PER BARREL)

REFINERY REGION							
NPC REGION	PAD 1A	PAD 1B	PAD 2A	PAD 2B	PAD 3	PAD 4	PAD 5
PAC. COAST	1.89	1.57	1.26	.61	.41	.75	.10
PAC. OCEAN	1.99	1.67	1.36	1.06	1.13	.95	.32
W. ROCKIES	1.50	1.24	.86	.50	.72	.60	.55
E. ROCKIES	1.45	1.39	.43	.26	1.03	.10	.79
W. TEX./							
E. N. MEX.	1.23	.90	.46	.22	.36	.65	.72
W. GULF BASIN	1.02	.66	.33	.50	.10	.91	1.08
GULF OF MEX.	.97	.61	.60	.80	.32	1.16	1.33
MIDCONT.	1.05	.88	.41	.19	.38	.68	1.06
MI. BASIN, INT/							
APPLACHIA	.70	.62	.24	.52	.79	.92	1.45
ATL. COAST	.87	.20	.77	1.09	.76	1.45	1.72
ATL. OCEAN	.45	.45	.74	1.03	1.05	1.43	1.90

DATA SOURCE : "INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION MODEL FOR THE TRANSPORT OF ENERGY MATERIALS", VOLUME II, PREPARED FOR THE TASK FORCE REPORT, FEDERAL ENERGY ADMINISTRATION PROJECT INDEPENDENCE BLUEPRINT FINAL, UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, NOVEMBER, 1974 , TABLE VIII-20, PG. VIII-24; TABLE VIII-21, PG. VIII-25; 1973 DOLLARS CHANGED TO 1975 DOLLARS BY FACTOR 1.212.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

TABLE 7
COSTS OF TRANSPORTING DOMESTIC CRUDE OIL
BY BARGE AND TANKER
(1975 DOLLARS PER BARREL)

REFINERY REGION				
NPC REGION	PAD 1A	PAD 1B	PAD 3	PAD 5
PAC. COAST	2.04	1.92	1.90	
PAC. OCEAN	2.09	1.97	1.95	
W. GULF BASIN	.72	.55		1.90
GULF OF MEX.	.72	.55		1.92
ATL. COAST	.68	.51	.46	
ATL. OCEAN	.35	.41	.76	

DATA SOURCE : "INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION MODEL FOR THE TRANSPORT OF ENERGY MATERIALS", VOLUME II, PREPARED FOR THE TASK FORCE REPORT, FEDERAL ENERGY ADMINISTRATION PROJECT INDEPENDENCE BLUEPRINT FINAL, UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, NOVEMBER, 1974 , TABLE VIII-10, PG. VIII-12
1973 DOLLARS CHANGED TO 1975 DOLLARS BY FACTOR 1.212.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

TABLE 9
TRANSPORTATION COSTS FOR ALASKAN CRUDE OIL
(1975 DOLLARS PER BARREL)

TRANSPORTATION SYSTEM	ORIGIN	DESTINATION	COST
TRANS-ALASKAN PIPELINE (TAPS)	NORTH SLOPE	SOUTH ALASKA	3.40
TANKER	SOUTH ALASKA	PAD 1A	2.63
TANKER	SOUTH ALASKA	PAD 1B	2.51
TANKER	SOUTH ALASKA	PAD 3	2.49
TANKER	SOUTH ALASKA	PAD 5	.60
TANKER AND NORTHERN TIER	SOUTH ALASKA	PAD 2B	1.13
TANKER AND NORTHERN TIER	SOUTH ALASKA	PAD 3	.91
TANKER AND EL PASO-SOHIO	SOUTH ALASKA	PAD 2A	1.12
TANKER AND EL PASO-SOHIO	SOUTH ALASKA	PAD 2B	1.10
TANKER AND EL PASO-SOHIO	SOUTH ALASKA	PAD 4	1.07

TABLE 8
TRANSPORTATION COSTS FOR FOREIGN CRUDE OIL
(1975 DOLLARS PER BARREL)

REFINERY REGION							
FOREIGN REGION	PAD 1A	PAD 1B	PAD 2A	PAD 2B	PAD 3	PAD 4	PAD 5
LANDED EAST COAST	.00						
LANDED GULF COAST					.00		
LANDED WEST COAST							.00
CANADA			.00	.00		.00	.00
CARRIBEAN	.00	.00			.00		
FOREIGN OTHER	.00				.00		.00
REFINERY REGION							
PAD 1		.00					
PAD 3			.28	.53		.86	

DATA SOURCE : "INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION MODEL FOR THE TRANSPORT OF ENERGY MATERIALS", VOLUME II, PREPARED FOR THE TASK FORCE REPORT, FEDERAL ENERGY ADMINISTRATION PROJECT INDEPENDENCE BLUEPRINT FINAL, UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, NOVEMBER, 1974, TABLE VIII-20, PG. VIII-24; TABLE VIII-21, PG. VIII-25; 1973 DOLLARS CHANGED TO 1975 DOLLARS BY FACTOR 1.212.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

TABLES 10 THROUGH 14 DESCRIBE THE TRANSPORTATION NETWORK FOR PETROLEUM PRODUCTS. RESIDUAL FUEL OIL REQUIRES SEPARATE BARGE AND TANKER COSTS BECAUSE OF ITS GREATER DENSITY AND IS NOT SHIPPED IN PIPELINES BECAUSE OF ITS HIGH VISCOSITY. THE DATA SOURCES FOR PRODUCTS TRANSPORTATION ARE THE SAME AS FOR CRUDE OIL TRANSPORTATION. PRODUCT PIPELINE LINKS THAT DO NOT CORRESPOND TO EXISTING PIPELINES ARE COSTED AT \$.07/BBL (NOTIONAL).

THE PURCHASE PRICES GIVEN IN THE IMPORT TABLES FOR PRODUCTS ARE THE DELIVERED CITY-GATE PRICES FOR THE DOE REGION OF ENTRY. ACCORDINGLY, THE TRANSPORTATION COSTS SHOWN IN TABLES 12 AND 14 FOR THESE LINKS ARE ZERO. THE NON-ZERO COSTS ARE FOR ADDITIONAL TRANSPORTATION INLAND.

TABLE 10
COSTS OF TRANSPORTING PETROLEUM PRODUCTS BY PIPELINE
(1975 DOLLARS PER BARREL)

REFINERY REGION	DOE REGION									
	NEW-ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CENTRAL	WEST	N.-WEST
PAD 1A	.16	.05	.05	.60	.63	1.14	.93	1.35	2.21	2.13
PAD 1B	.67	.59	.46	.18	.69	.70	.80	1.25	2.08	2.15
PAD 2A	.84	.73	.64	.42	.05	.49	.19	.63	1.53	1.54
PAD 2B	1.17	1.07	.98	.69	.34	.28	.05	.42	1.31	1.49
PAD 3	1.35	.44	.40	.29	.45	.20	.38	.40	1.47	1.85
PAD 4	1.56	1.48	1.40	1.22	.85	.81	.64	.18	.83	.37
PAD 5	2.27	2.15	2.03	1.59	1.55	1.02	1.24	.94	.05	.05

DATA SOURCE : "INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION MODEL FOR THE TRANSPORT OF ENERGY MATERIALS", VOLUME II, PREPARED FOR THE TASK FORCE REPORT, FEDERAL ENERGY ADMINISTRATION PROJECT INDEPENDENCE BLUEPRINT FINAL, UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, NOVEMBER, 1974 , TABLE VIII-17, PG. VIII-21
1973 DOLLARS CHANGED TO 1975 DOLLARS BY FACTOR 1.212.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

TABLE 11
COSTS OF TRANSPORTING DOMESTIC PETROLEUM PRODUCTS (EXCEPT RESIDUAL)
BY BARGE AND TANKER
(1975 DOLLARS PER BARREL)

REFINERY REGION	DOE REGION									
	NEW-ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CENTRAL	WEST	N.-WEST
PAD 1A	.28	.08	.08						2.24	2.48
PAD 1B	.36	.28	.26	.21					2.11	2.35
PAD 2A					.08		.32			
PAD 2B					.51		.21			
PAD 3	.72	.65	.62	.36	.73	.08	.76		2.09	2.33
PAD 4								.21		
PAD 5	2.29	2.24	2.22						.08	.08

DATA SOURCE : "INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION MODEL FOR THE TRANSPORT OF ENERGY MATERIALS", VOLUME II, PREPARED FOR THE TASK FORCE REPORT, FEDERAL ENERGY ADMINISTRATION PROJECT INDEPENDENCE BLUEPRINT FINAL, UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, NOVEMBER, 1974 , TABLE VIII-2, PG. VIII-6
1973 DOLLARS CHANGED TO 1975 DOLLARS BY FACTOR 1.212.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

TABLE 12
COSTS OF TRANSPORTING IMPORTED PETROLEUM PRODUCTS (EXCEPT RESIDUAL)
BY BARGE AND TANKER
(1975 DOLLARS PER BARREL)

DOE REGION

FOREIGN REGION	NEW ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL	WEST	N.-WEST
CANADA		.00			.00					.00
CARRIBEAN	.52	.43	.41	.18	.75	.00	.66	2.80	1.93	2.12
FOREIGN OTHER	.00	.00	.00	.00	.75	.00	.66	2.80	.00	.00

DATA SOURCE : "INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION
MODEL FOR THE TRANSPORT OF ENERGY MATERIALS", VOLUME II, PREPARED FOR THE TASK
FORCE REPORT, FEDERAL ENERGY ADMINISTRATION PROJECT INDEPENDENCE BLUEPRINT
FINAL, UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, NOVEMBER, 1974 ,
TABLE VIII-2, PG. VIII-6
1973 DOLLARS CHANGED TO 1975 DOLLARS BY FACTOR 1.212.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

TABLE 13
COSTS OF TRANSPORTING DOMESTIC RESIDUAL FUEL
BY BARGE AND TANKER
(1975 DOLLARS PER BARREL)

REFINERY REGION	DOE REGION									
	NEW ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL	WEST	N.-WEST
PAD 1A	.31	.10	.10						2.46	2.73
PAD 1B	.39	.31	.28	.25					2.32	2.59
PAD 2A					.10		.39			
PAD 2B					.62		.25			
PAD 3	.80	.71	.69	.40	.88	.10	.92		2.30	2.56
PAD 4								.25		
PAD 5	2.52	2.46	2.44						.10	.10

DATA SOURCE : "INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION MODEL FOR THE TRANSPORT OF ENERGY MATERIALS", VOLUME II, PREPARED FOR THE TASK FORCE REPORT, FEDERAL ENERGY ADMINISTRATION PROJECT INDEPENDENCE BLUEPRINT FINAL, UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, NOVEMBER, 1974 , TABLE VIII-6, PG. VIII-9
1973 DOLLARS CHANGED TO 1975 DOLLARS BY FACTOR 1.212.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

TABLE 14
COSTS OF TRANSPORTING IMPORTED RESIDUAL FUEL
BY BARGE AND TANKER
(1975 DOLLARS PER BARREL)

FOREIGN REGION	DOE REGION									
	NEW ENG.	NY/NJ	MID-ATL.	S.-ATL.	MIDWEST	S.-WEST	CENTRAL	N.-CNTRL	WEST	N.-WEST
CANADA		.00			.00					.00
CARRIBEAM	.55	.46	.44	.20	.80	.00	.70	3.00	2.05	2.26
FOREIGN OTHER	.00	.00	.00	.00	.80	.00	.70	3.00	.00	.00

DATA SOURCE : "INPUTS TO THE PROJECT INDEPENDENCE EVALUATION SYSTEM INTEGRATION MODEL FOR THE TRANSPORT OF ENERGY MATERIALS", VOLUME II, PREPARED FOR THE TASK FORCE REPORT, FEDERAL ENERGY ADMINISTRATION PROJECT INDEPENDENCE BLUEPRINT FINAL, UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION, NOVEMBER, 1974 , TABLE VIII-6, PG. VIII-9
1973 DOLLARS CHANGED TO 1975 DOLLARS BY FACTOR 1.212.

OFFICE RESPONSIBLE : MID-RANGE ANALYSIS DIVISION, APPLIED ANALYSIS, EIA.

UTILITIES DATA

This section has 21 tables of electric utilities input data. The tables fall into four categories: load duration, capacity, cost and physical units.

TABLE 1 contains the load duration factors representing the various demand requirements by base, cycling, daily peak and seasonal peak loads. These four modes account for the fact that electricity cannot be stored and must be produced on demand and that demand changes daily and seasonally. The load duration factors are given by DOE region. Regional system load factors are given as well, and scheduled shut-downs for maintenance and other forced outages are also considered. DOE regions are shown in Figure II-1.

Following TABLE 1 is a load duration curve approximation and ten unnumbered tables containing plant capacity factors—one for each DOE region. The capacity factors are given for both existing and new plants.

Capacity figures are given in TABLES 3, 5, 6, 7, 8, and 9. TABLE 4 gives the retirement rates for fossil-fuel-fired plants in percentage terms.

Cost data appear in TABLES 10 through 15. Heat rates and heat values appear in TABLES 16 through 21.

1985 ELECTRIC UTILITIES INPUT DATA
FOR FORECASTS BASED ON
CURRENT LAW

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THERE ARE FOUR CATEGORIES OF INPUT DATA ELEMENTS:

LOAD-DURATION-	FACTORS WHICH REPRESENT NONUNIFORM DEMAND REQUIREMENTS (I.E. BASE, CYCLING, DAILY PEAK, AND SEASONAL PEAK LOADS);
CAPACITY-	EXISTING AND NEW CAPACITY FOR EACH PLANT TYPE, AND MANDATED CONVERSION;
COST-	CAPITAL CHARGES, OPERATION AND MAINTENANCE COSTS, SCRUBBING COSTS, AND TRANSMISSION AND DISTRIBUTION COSTS;
PHYSICAL-	HEAT RATES AND VALUES FOR EACH PLANT AND FUEL;

IN MOST CASES THE DATA VARIES BY DOF REGION. THE DATA ELEMENTS, THEREFORE, ARE AGGREGATES, COMPUTED FROM A PLANT-BY-PLANT (OR PROJECT-BY-PROJECT) DATABASE.

TABLE 1 SHOWS REGIONAL COMPOSITION AND CAPACITY FACTORS FOR BASE, CYCLING, DAILY PEAK, AND SEASONAL PEAK LOADS AS WELL AS THE SYSTEM LOAD FACTORS (I.E. THE RATIO OF AVERAGE TO PEAK LOAD). THE RESERVE MARGIN IS 20% FOR EACH REGION. COMPOSITION FACTORS ARE THE FRACTIONS OF ELECTRIC POWER IN EACH LOAD. FOR EXAMPLE, IN REGION 1 OF ALL ELECTRICITY DEMANDED DURING THE YEAR, 58.7% IS BASE, 24.7% IS CYCLING, 4.4% IS DAILY PEAK, AND 2.2% IS SEASONAL PEAK. FIGURE 1 SHOWS A (GENERIC) LOAD-DURATION CURVE WITH THE FOUR LOADS SHOWN AS AREAS UNDER A LINEAR APPROXIMATION OF THE ACTUAL CURVE.

GENERATING FACILITIES ARE CLASSIFIED AS BASE, CYCLING, DAILY PEAK OR SEASONAL PEAK DEPENDING UPON THE ORDER IN WHICH THEY ARE BROUGHT INTO OPERATION AS DEMAND INCREASES. CAPACITY FACTORS ARE THE FRACTIONS OF TIME A PLANT IS ACTUALLY OPERATED AND NOT SHUT DOWN FOR REPAIRS OR SCHEDULED MAINTENANCE OR UNUSED FOR LACK OF SUFFICIENT DEMAND. FOR EXAMPLE, IF AN EXISTING RESIDUAL-FIRED PLANT IN REGION 1 IS OPERATED IN BASE LOAD FOR A YEAR, THE ACTUAL NUMBER OF KILOWATT-YEARS OF ELECTRICITY GENERATED, ON THE AVERAGE, WILL BE ITS CAPACITY (IN KILOWATTS) MULTIPLIED BY ITS CAPACITY FACTOR, IN THIS CASE .70. SINCE BASE PLANTS ARE OPERATED ALMOST CONTINUOUSLY WHEN THEY ARE AVAILABLE, THIS INDICATES THAT THE PLANT WILL BE SHUT DOWN APPROXIMATELY 30% OF THE TIME. FOR THIS SAME PLANT OPERATING IN CYCLING LOAD, THE CAPACITY FACTOR IS .55, REFLECTING THE PERIODS THE PLANT WILL NOT OPERATE BECAUSE THE DEMAND DOES NOT WARRANT BRINGING IN CYCLING PLANTS AS WELL AS PERIODS WHEN IT IS FORCED OUT OF SERVICE OR SHUT DOWN FOR MAINTENANCE.

TABLE 1: LOAD-DURATION CURVE DATA FOR 1985

DOE REGION	COMPOSITION FACTORS				SYSTEM LOAD FACTOR
	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK	
NW-ENG.	.687	.247	.044	.022	.590
NY/NJ	.746	.188	.042	.023	.630
MID-ATL	.766	.166	.042	.025	.600
S.-ATL	.770	.158	.043	.029	.600
MIDWEST	.758	.185	.037	.020	.630
S.-WEST	.756	.144	.067	.033	.540
CENTRAL	.749	.156	.063	.033	.550
N-CENTRAL	.783	.167	.026	.024	.600
WEST	.758	.173	.043	.026	.630
N.-WEST	.810	.130	.036	.024	.620

DATA SOURCES : COMPOSITION FACTORS; 1971 ANNUALIZED LOAD DURATION CURVES FROM "RESPECIFICATION OF THE ELECTRIC UTILITY MODEL IN PIE5", GENERAL ELECTRIC COMPANY. ALSO, THE BREAK POINT GIVING BOUNDS FOR THE FOUR MODES ARE ASSIGNED EXGENOUSLY AND ARE BASED ON HISTORICAL AND ECONOMIC CONSIDERATIONS.

OFFICE RESPONSIBLE : OFFICE OF INTEGRATIVE ANALYSIS, APPLIED ANALYSIS, EIA
APPLIED ANALYSIS, EIA

FIGURE 1: LINEAR APPROXIMATION OF A LOAD-DURATION CURVE

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CAPACITY FACTORS FOR DOE REGION 1 (NEW ENGLAND)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH NO SCRUBBING REQUIRED)				
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE377.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 2 (NEW YORK AND NEW JERSEY)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.549	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO PPC ORDER 183-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 3 (MID-ATLANTIC)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH NO SCRUBBING REQUIRED)				
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO PPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. RYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 4 (SOUTH ATLANTIC)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO EPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 5 (MIDWEST)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH NO SCRUBBING REQUIRED)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 6 (SOUTHWEST)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO PPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA). NUCLEAR : MEMO TO R. EYNDON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NEO77.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 7 (CENTRAL)

	EASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULPHUR COAL)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH NO SCRUBBING REQUIRED)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULPHUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 8 (NORTH CENTRAL)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH NO SCRUBBING REQUIRED)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO PPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. BYRON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 9 (WEST)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH NO SCRUBBING REQUIRED)				
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO PPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 10 (NORTHWEST)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO PPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NED77.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

TABLE 2 BELOW SHOWS EXISTING CAPACITY FOR EACH PLANT TYPE IN EACH DOE REGION. TABLE 3 SHOWS THE EXISTING CAPACITIES WHICH MAY BE CONVERTED TO ALTERNATE FUEL TYPES AS WELL AS THE MANDATED CONVERSIONS ACCORDING TO THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT (ESECA) AS OF JUNE 30, 1977.

TABLE 2: EXISTING CAPACITY (MEGAWATTS) *

PLANT TYPE	DOE REGION										TOTAL
	1	2	3	4	5	6	7	8	9	10	
RESIDUAL-FIRED STEAM	10286	21489	13690	16117	10122	3676	1150	394	25374	204	102202
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	1276	8503	4473	7900	6534	543	3373	936	3567	960	38145
DISTILLATE-FIRED COMBINED CYCLE TURBINE	170	931	203	619	217	1112	70	-	1219	612	5153
GAS-FIRED STEAM	-	50	-	2981	1035	55052	4957	248	1053	35	65411
GAS-FIRED TURBINE	-	130	414	2413	1110	1806	700	44	59	50	6731
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	1024	1624	-	1589	12802	-	706	1170	1772	-	22687
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	-	-	3263	2370	1470	-	965	-	490	-	8558
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	485	2950	26908	48731	40296	-	9486	2215	1616	-	132687
SUB-BITUMINOUS COAL-FIRED STEAM	-	-	-	-	13385	3338	3248	4554	-	1300	25825
LIGNITE COAL-FIRED STEAM	-	-	-	-	141	4857	-	2039	-	-	7037
HYDRO-ELECTRIC (PONDAGE)	1303	5187	1101	10445	1436	2004	636	5390	10128	23861	61491
HYDRO-ELECTRIC (PUMP STORAGE)	1607	1629	1432	921	1979	299	408	334	1646	100	10355
NUCLEAR	4199	6132	6112	12838	11391	850	2010	-	1411	1130	46073
REGIONAL AND NATIONAL TOTALS	40700	97410	115192	217858	203836	147074	55418	34648	96070	56504	1064710

*AS OF 1/1/78

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
 FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA).
 NUCLEAR : MEMO TO D. HULETT AND H. WALTON FROM R.G. CLARK AND A.W. REYNOLDS DATED 12/5/77.
 SUBJECT: NUCLEAR POWER PLANT BUILD LIMITS AND CAPITAL COSTS FOR PIES. ATTACHMENT 1A.

OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

TABLE 3: EXISTING CAPACITIES WHICH MAY BE CONVERTED
TO BURN ALTERNATE FUEL TYPES

PLANT TYPE	DOE REGION										TOTALS
	1	2	3	4	5	6	7	8	9	10	
RESIDUAL-FIRED STEAM PLANTS WHICH * MUST BE CONVERTED TO COAL	2488	6822	4061	1794	656	-	46	68	-	-	15937
GAS-FIRED STEAM PLANTS WHICH CAN BE CONVERTED TO RESIDUAL	-	-	-	1764	60	45968	2700	168	744	35	51447
RESIDUAL-FIRED STEAM WHICH CAN BE CONVERTED TO GAS	185	4539	443	6513	2288	1578	231	123	22936	53	38889
GAS-FIRED TURBINES WHICH CAN BE CONVERTED TO DISTILLATE	-	-	-	2396	628	327	531	31	59	50	4022
DISTILLATE-FIRED TURBINES WHICH CAN BE CONVERTED TO GAS	291	3208	386	2851	2610	106	616	314	2399	256	13037
GAS-FIRED STEAM PLANTS WHICH * MUST BE CONVERTED TO COAL	-	-	-	-	-	-	685	-	-	-	685
REGIONAL AND NATIONAL TOTALS	2964	14569	4892	15318	6250	47979	4809	704	26138	394	124017

*MANDATED CONVERSIONS ACCORDING TO THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT
(ESECA) AS OF JUNE 30, 1977.

DATA SOURCE : OFFICE OF COAL UTILIZATION.

OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA

TABLE 4 SHOWS RETIREMENT RATES FOR EXISTING FOSSIL FUEL FIRED FACILITIES IN 1985.
FOSSIL FUEL PLANTS COAL, OIL AND GAS FIRED FACILITIES:

TABLE 4: RETIREMENT RATES FOR FOSSIL FUEL FIRED PLANTS (PERCENT)

YEAR	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
1985	.015	.030	.010	.007	.009	.015	.018	.001	.025	.005

DATA SOURCE : ORDER 383, REPORT BY THE REGIONAL ELECTRIC RELIABILITY COUNCILS
IN RESPONSE TO PRC ORDER 383-4. FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA).
PROJECTED ADDITIONS AND RETIREMENTS.

OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLES 5 AND 6 SHOW COMMITTED AND DEFERRABLE CAPACITIES FOR COAL, RESIDUAL, DISTILLATE, NATURAL GAS AND NUCLEAR PLANTS. TABLE 7 SHOWS BUILD LIMITS FOR NUCLEAR, COAL, RESIDUAL AND HYDRO-ELECTRIC PLANTS. COMMITTED PROJECTS HAVE ESSENTIALLY ALL OF THE CAPITAL SUNK AND CONSTRUCTION IS NEARLY COMPLETED. DEFERRABLE PROJECTS HAVE SUNK APPROXIMATELY 10% OF THEIR CAPITAL REQUIREMENTS AND GROUND HAS BEEN BROKEN; HOWEVER THEY MAY BE DEFERRED UNTIL AFTER THE FORECAST YEAR IF IT IS ECONOMICAL TO DO SO. NEW PROJECTS HAVE NO CAPITAL SUNK, BUT THEY MAY HAVE ENTERED THE PLANNING STAGE. SINCE ALL NUCLEAR PLANTS THAT WOULD BE COMPLETE BY 1985 HAVE ALREADY BEEN REGISTERED WITH THE U.S. NUCLEAR REGULATORY COMMISSION, THERE ARE ASSOCIATED LIMITS IN THE MODEL. THE LIMITS FOR NUCLEAR CAPACITY IN 1990, FOR COAL-FIRED STEAM IN 1985, FOR RESIDUAL-FIRED STEAM AND HYDRO-ELECTRIC IN 1985 AND 1990 ARE ESTIMATED BOUNDS ON THE GROWTH OF NUCLEAR, COAL-FIRED STEAM, RESIDUAL-FIRED STEAM AND HYDRO-ELECTRIC CAPACITY, RESPECTIVELY. ALL OTHER PLANT TYPES HAVE NO LIMITS FOR 1985 AND 1990 BECAUSE THOSE YEARS ARE BEYOND THEIR PLANNING CYCLES. EXCEPT, NO NEW GAS STEAM OR GAS TURBINE PLANTS MAY BE BUILT, OTHER THAN THE COMMITTED PLANTS SHOWN IN TABLE 5.

TABLE 5: COMMITTED* CAPACITY FOR 1985
(MEGAWATTS)

PLANT TYPE	DOE REGION										TOTALS
	1	2	3	4	5	6	7	8	9	10	
NUCLEAR	-	2001	5925	13226	7579	3227	-	330	4470	1103	37861
RESIDUAL-FIRED STEAM	600	850	-	688	2340	480	-	-	292	198	5448
BITUMINOUS COAL-FIRED STEAM (WITHOUT SCRUBBERS)	-	-	400	1532	1892	-	1250	600	1200	-	6874
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBERS)	-	-	2077	2905	4851	-	-	-	-	-	9835
SUB-BITUMINOUS COAL-FIRED STEAM	-	-	-	-	897	4541	2066	2090	-	-	9594
LIGNITE COAL-FIRED STEAM	-	-	-	-	641	2585	-	339	-	-	3665
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	6	-	200	300	405	239	770	246	198	-	2372
DISTILLATE-FIRED COMBINED CYCLE TURBINE	230	-	-	-	-	-	-	-	809	-	1039
GAS-FIRED STEAM	-	-	-	-	-	550	-	-	-	-	550
REGIONAL AND NATIONAL TOTALS	836	2851	8602	18651	18607	11722	4094	3605	6969	1301	77238

*ALL CAPITAL SUNK AND CONSTRUCTION NEARLY COMPLETED

DATA SOURCES FOR TABLES 5,6,7,8,9 :

FORM 4 (MONTHLY PUBLICATION) GENERATION OF ENERGY, CONSUMPTION OF ENERGY AND FUEL STOCKS, FILED WITH EIA. DATA FOR SCRUBBERS DERIVED FROM THE ENVIRONMENTAL PROTECTION AGENCY STANDARDS FOR ALL COAL PLANTS. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.

CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL. NUCLEAR - MEMO FROM G. CLARK (NUCLEAR ENERGY ANALYSIS DIVISION) THRU D. HULETT AND H. WALTON TO HARVEY GREENBERG. SUBJECT: "NUCLEAR POWER BUILD LIMITS AND CAPITAL COSTS FOR PIRS", DATED BUT C. 12/5/77, REVISED 1/13/78. THE NUCLEAR ENERGY ANALYSIS DIVISION OF EIA OBTAINS THEIR BASIC DATA FOR BUILD LIMITS FROM THE U.S. NUCLEAR REGULATORY COMMISSION.

TABLE 6: DEFERRABLE* CAPACITY FOR 1985
(MEGAWATTS)

PLANT TYPE	DOE REGION										TOTALS
	1	2	3	4	5	6	7	8	9	10	
NUCLEAR	-	1067	3065	1145	4154	3367	1150	-	340	1267	15555
BITUMINOUS COAL-FIRED STEAM	-	-	1300	2710	2143	1100	1275	400	700	-	9628
SUB-BITUMINOUS COAL-FIRED STEAM	-	-	-	-	580	6346	1910	2780	-	500	12116
LIGNITE COAL-FIRED STEAM	-	-	-	-	556	1978	-	294	-	-	2828
REGIONAL AND NATIONAL TOTALS	-	1067	4365	3855	7433	12791	4335	3474	1040	1767	40127

*APPROXIMATELY 10% OF CAPITAL SUNK, GROUND HAS
BEEN BROKEN AND PLANT SCHEDULED TO OPERATE
BY 1985

TABLE 7: NEW PLANT CAPACITY LIMITS (1985)
(MEGAWATTS)

PLANT TYPE	DOE REGION										TOTALS
	1	2	3	4	5	6	7	8	9	10	
RESIDUAL-FIRED STEAM	-	-	610	-	-	-	-	-	-	864	1474
BITUMINOUS COAL-FIRED STEAM	-	2400	3490	15058	9933	1053	1183	504	1751	-	15372
SUB-BITUMINOUS COAL-FIRED STEAM	-	-	-	-	1228	5880	1774	3476	-	3581	15939
LIGNITE COAL-FIRED STEAM	-	-	-	-	691	1843	-	367	-	-	2901
HYDRO-ELECTRIC (PONDAGE)	10	-	-	818	69	32	27	577	975	7346	9854
HYDRO-ELECTRIC (PUMP STORAGE)	-	1000	3204	2514	-	-	1191	200	2405	200	10714
REGIONAL AND NATIONAL TOTALS	10	3400	7304	18390	11921	8808	4175	5124	5131	11991	76254

TABLE 8 SHOWS THE OPERATION AND MAINTENANCE COSTS FOR EACH PLANT TYPE. TABLE 9 SHOWS REVENUE REQUIREMENTS FOR EXISTING EQUIPMENT. TABLE 10 SHOWS THE CAPITAL COSTS FOR NEW PLANTS IN 1985. TABLES 11 AND 12 SHOW ASSOCIATED CHARGE FACTORS. THE REVENUE REQUIREMENT CHARGE FACTOR IS USED IN THE RATE BASE COMPUTATION (WHICH IS AVERAGE, RATHER THAN MARGINAL, COST). THE INVESTMENT CHARGE FACTOR IS USED IN DETERMINING THE DECISION OF WHICH PLANT IS TO BE BUILT IF MORE CAPACITY IS REQUIRED TO MEET DEMAND. THE REVENUE REQUIREMENT CHARGE FACTORS ARE REPORTED BY REGION, BECAUSE THESE CHARGE FACTORS ARE BASED ON AVERAGE COSTS OF PRODUCING ELECTRICITY, RATHER THAN THE MARGINAL COSTS FOR ANY PARTICULAR PLANT TYPE. ON THE OTHER HAND, THE INVESTMENT CHARGE IS REPORTED BY PLANT TYPE BECAUSE OF THE DIFFERENT INCOME TAX TREATMENT EACH PLANT TYPE RECEIVES UNDER THE IRS CODE. TABLE 13 SHOWS TRANSMISSION AND DISTRIBUTION COSTS AS WELL AS EFFICIENCY RATES (E.G. IN REGION 1 FOR EVERY KILOWATT GENERATED, ONLY .914 KILOWATTS IS DISTRIBUTED.)

TABLE 8: OPERATION AND MAINTENANCE COSTS
(1975 MILLS PER KILOWATT HOUR)

PLANT TYPE	OMC COST
RESIDUAL-FIRED STEAM	.90
BITUMINOUS COAL* (WITH SCRUBBER)	2.80
(WITHOUT SCRUBBER)	1.10
SUB-BITUMINOUS COAL** (WITH SCRUBBER)	2.00
(WITHOUT SCRUBBER)	1.10
LIGNITE COAL*** (WITH SCRUBBER)	2.00
(WITHOUT SCRUBBER)	1.10
DISTILLATE-FIRED SIMPLE CYCLE	2.75
DISTILLATE-FIRED COMBINED CYCLE	1.25
GAS-FIRED TURBINE	2.75
GAS-FIRED STEAM	.50
HYDRO-ELECTRIC (PONDAGE)	.70
HYDRO-ELECTRIC (PUMP STORAGE)	.70
NUCLEAR	1.65

* BITUMINOUS PLANTS MAY BE SCRUBBED OR UNSCRUBBED EXCEPT FOR NEW PLANTS IN DOE REGIONS 8, 9 AND 10 WHICH MUST BE SCRUBBED AND USE LOW SULFUR COAL

** SUB-BITUMINOUS PLANTS ARE ASSUMED TO BE UNSCRUBBED EXCEPT FOR NEW PLANTS IN DOE REGIONS 8, 9 AND 10 WHICH ARE ASSUMED TO BE SCRUBBED

*** NEW LIGNITE PLANTS ARE ASSUMED TO BE SCRUBBED: WHILE EXISTING PLANTS ARE ASSUMED TO BE UNSCRUBBED

TABLE 9: REVENUE REQUIREMENTS IN 1985
FOR EXISTING ASSETS

DOE REGION	REVENUE REQUIREMENTS (MILLIONS OF 1975 \$)
1	866
2	2311
3	2378
4	2740
5	3400
6	1555
7	864
8	483
9	1551
10	685

TABLE 10: CAPITAL COSTS OF NEW PLANTS IN 1985
(1975 DOLLARS PER KILOWATT)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
RESIDUAL-FIRED STEAM	385	407	365	346	380	348	377	363	392	374
BITUMINOUS COAL (WITH SCRUBBER) *	516	546	491	465	510	467	506	487	526	502
BITUMINOUS COAL (WITHOUT SCRUBBER) *	415	439	394	373	410	376	407	487	526	502
SUB-BITUMINOUS COAL *	450	476	428	405	445	408	442	520	562	537
LIGNITE COAL *	553	553	553	553	553	553	553	553	553	553
DISTILLATE-FIRED SIMPLE CYCLE	151	151	151	151	151	151	151	151	151	151
DISTILLATE-FIRED COMBINED CYCLE	290	290	290	290	290	290	290	290	290	290
GAS-FIRED STEAM	325	325	325	265	290	265	290	305	300	300
HYDRO-ELECTRIC (PONDAGE)	390	330	300	270	290	230	300	130	320	180
HYDRO-ELECTRIC (PUMP STORAGE)	390	330	300	270	290	230	300	330	320	180
NUCLEAR (DEFERRABLE)	-	596	347	214	211	280	441	-	286	478

* CAPITAL COST OF DEFERRABLE COAL PLANTS IS .90 OF NEW PLANT COSTS

NOTE: RETROFITTING AN EXISTING BITUMINOUS COAL PLANT USING HIGH
SULFUR COAL IN BASELOAD COSTS \$131 PER KILOWATT

DATA SOURCES : ANNUAL REPORT FOR DETAILED FINANCIAL AND OPERATING DATA
SUBMITTED BY ALL CLASS A AND B PRIVATE ELECTRIC UTILITIES. FILED WITH EIA. PFC PUBLICATION.
PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES
AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE,
WASHINGTON, D.C.
CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE
ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING
INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 11: CAPITAL CHARGE RATES (PERCENT) FOR
REVENUE REQUIREMENTS

CAPITAL CHARGE RATES FOR REVENUE REQUIREMENTS	
DOE REGION	1985
1	15.6
2	18.8
3	14.2
4	11.2
5	14.7
6	13.5
7	14.3
8	11.1
9	13.1
10	7.2

DATA SOURCES : STUDY CONDUCTED BY THE OAKRIDGE NATIONAL LABORATORIES USING THE
COMPUTER MODEL CONCEPT 4

NUCLEAR: MEMO FROM G. CLARK TO H. GREENBERG DATED 5/24/77

PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED
STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974" AMERICAN PETROLEUM INSTITUTE
WASHINGTON, D.C.

CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL
PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975".
THESE DATA ARE USED AS INPUT FOR THE PIRS OIL AND GAS MODEL.

TABLE 12: CAPITAL CHARGE RATES FOR INVESTMENT
DECISIONS (ANNUAL PERCENT)

PLANT TYPE	CAPITAL CHARGE RATE FOR INVESTMENT DECISIONS
RESIDUAL-FIRED STEAM	11.4
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBER)	12.5
BITUMINOUS COAL-FIRED STEAM (WITHOUT SCRUBBER)	11.4
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	10.5
DISTILLATE-FIRED COMBINED CYCLE TURBINE	10.9
GAS-FIRED STEAM	11.4
HYDRO	10.2
SUB-BITUMINOUS COAL-FIRED STEAM	11.4
LIGNITE COAL-FIRED STEAM	11.4
NUCLEAR	11.4

DATA SOURCES : STUDY CONDUCTED BY THE OAKRIDGE NATIONAL LABORATORIES USING THE
COMPUTER MODEL CONCEPT 4

NUCLEAR: MEMO FROM G. CLARK TO H. GREENBERG DATED 5/24/77

PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED
STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974" AMERICAN PETROLEUM INSTITUTE
WASHINGTON, D.C.

CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL
PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975".
THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 13: TRANSMISSION AND DISTRIBUTION DATA

DOE REGION	AVERAGE EFFICIENCY RATE (PERCENTAGE)	OPERATION AND MAINTENANCE COST (MILLS/KILOWATT-HOUR)	CAPITAL COST (\$/KILOWATT)
1	91.40	5.7	493
2	91.80	5.2	626
3	92.40	4.7	304
4	91.40	5.0	262
5	92.30	4.3	361
6	92.50	4.6	228
7	91.20	5.5	354
8	88.30	5.6	309
9	90.80	5.3	514
10	91.00	5.6	279

DATA SOURCES : ANNUAL REPORT FOR DETAILED FINANCIAL AND OPERATING DATA SUBMITTED BY ALL CLASS A AND B PRIVATE ELECTRIC UTILITIES. FILED WITH EIA. PPC PUBLICATION. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON, D.C.

CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLES 14, 15, 16 AND 17 SHOW AGGREGATE HEAT RATES FOR EXISTING EQUIPMENT FOR BASE, CYCLING, DAILY PEAK AND SEASONAL PEAK LOADS, RESPECTIVELY. TABLE 18 SHOWS HEAT RATES* FOR NEW FACILITIES (SAME FOR EACH REGION), AND TABLE 19 SHOWS HEAT VALUES FOR FOSSIL FUELS. THE RATIO OF HEAT RATE TO HEAT VALUE DETERMINES THE AMOUNT OF FUEL NEEDED TO GENERATE ONE KILOWATT. SPECIFICALLY, THE FUEL REQUIRED TO OPERATE A PLANT TO GENERATE ONE MEGAWATT OF ELECTRICITY IN A PARTICULAR LOAD (I.E. BASE, CYCLING, DAILY PEAK OR SEASONAL PEAK) IS:

$$\text{FUEL REQUIREMENT} = (\text{HEAT RATE}) / (\text{HEAT VALUE})$$

WHERE THE AMOUNT OF FUEL REQUIRED IS MEASURED IN PHYSICAL UNITS (I.E. TONS, BARRELS, THOUSANDS OF STANDARD CUBIC FEET, ETC.)

TABLE 20 SHOWS NUCLEAR FUEL SUPPLY DATA.

* THE HEAT RATE IS THE ENERGY REQUIRED PER HOUR OF OPERATION, WHERE ENERGY IS MEASURED BY BRITISH THERMAL UNITS (BTU)

TABLE 14: HEAT RATES FOR EXISTING EQUIPMENT OPERATED IN BASE LOAD,
(BTU PER KILOWATT-HOUR)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
RESIDUAL-FIRED STEAM	10000	10300	10700	10000	12100	10300	11200	14500	9800	11300
DISTILLATE-FIRED SIMPLE CYCLE	14500	14600	12500	13000	14500	12800	12500	12000	15700	12300
DISTILLATE-FIRED COMBINED CYCLE	8500	8500	8500	8500	8500	8500	8500	-	8500	8500
GAS-FIRED STEAM	12500	10900	10900	11100	13400	10100	11300	11900	10400	11500
GAS-FIRED TURBINE	14000	15400	14300	16500	14700	13000	14700	12200	13700	12500
BITUMINOUS COAL (WITH SCRUBBER)	10510	11000	10300	10300	10500	-	10900	11500	10700	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	10110	10500	9900	9900	10200	-	10500	11200	10300	-
SUB-BITUMINOUS COAL	-	-	-	-	10300	10100	10600	10700	-	10700
LIGNITE	-	-	-	-	12400	10500	-	11900	-	-

DATA SOURCES : COMPUTER MODEL DEVELOPED BY ROBERT BORLICK AND DAVID HATCHER
(ELECTRIC POWER ANALYSIS DIVISION OF EIA)
PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES
AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.
CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE
ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING
INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT TO THE PIES OIL AND GAS MODEL.

TABLE 15: HEAT RATES FOR EXISTING EQUIPMENT OPERATED IN CYCLING LOAD
(BTU PER KILOWATT-HOUR)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
RESIDUAL-FIRED STEAM	10500	10800	11200	10500	12600	10800	11700	15000	10300	11500
DISTILLATE-FIRED SIMPLE CYCLE	14500	15100	13000	13500	15000	13300	13000	12500	16200	12500
DISTILLATE-FIRED COMBINED CYCLE	9000	9000	9000	9000	9000	9000	9000	-	9000	9000
GAS-FIRED STEAM	13000	11400	11400	11600	13900	10600	11800	12400	10900	12000
GAS-FIRED TURBINE	14500	15900	14800	17000	15200	13500	15200	12700	14200	13100
BITUMINOUS COAL (WITH SCRUBBER)	11000	11500	10800	10800	11000	-	11400	12100	11200	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	10600	11000	10400	10400	10700	-	11000	11700	10800	-
SUB-BITUMINOUS COAL	-	-	-	-	10800	10600	11100	11200	-	11200
LIGNITE	-	-	-	-	12900	11000	-	12400	-	-

DATA SOURCES : FINANCIAL STATEMENT, ANNUAL REPORT, FPC FORM 1
PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUID AND NATURAL GAS IN THE UNITED
STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE
WASHINGTON, D.C.
CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE
ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975".
THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 16: HEAT RATES FOR EXISTING EQUIPMENT OPERATED IN DAILY PEAK LOAD.
(BTU PER KILOWATT-HOUR)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
RESIDUAL-FIRED STEAM	10500	10800	11200	10500	12600	10800	11700	15000	10300	11500
DISTILLATE-FIRED SIMPLE CYCLE	14500	15100	13000	13500	15000	13300	13000	12500	16200	12500
DISTILLATE-FIRED COMBINED CYCLE	9000	9000	9000	9000	9000	9000	9000	-	9000	9000
GAS-FIRED STEAM	13000	11400	11400	11600	13900	10600	11800	12400	10900	12300
GAS-FIRED TURBINE	14500	15900	14800	17000	15200	13500	15200	12700	14200	13100
BITUMINOUS COAL (WITH SCRUBBER)	11000	11500	10800	10800	11000	-	11400	12100	11200	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	10600	11000	10400	10400	10700	-	11000	11700	10800	-
SUB-BITUMINOUS COAL	-	-	-	-	10800	10600	11100	11200	-	11200
LIGNITE	-	-	-	-	12900	11000	-	12400	-	-

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 17: HEAT RATES FOR EXISTING EQUIPMENT OPERATED IN SEASONAL PEAK LOAD
(BTU PER KILOWATT-HOUR)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
RESIDUAL-FIRED STEAM	-	-	-	-	-	-	-	-	-	-
DISTILLATE-FIRED SIMPLE CYCLE	14500	15100	13000	13500	15000	13300	13000	12500	16200	12500
DISTILLATE-FIRED COMBINED CYCLE	-	-	-	-	-	-	-	-	-	-
GAS-FIRED STEAM	-	-	-	-	-	-	-	-	-	-
GAS-FIRED TURBINE	14500	15900	14800	17000	15200	13500	15200	12700	14200	13100
BITUMINOUS COAL (WITH SCRUBBER)	-	-	-	-	-	-	-	-	-	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	-	-	-	-	-	-	-	-	-	-
SUB-BITUMINOUS COAL	-	-	-	-	-	-	-	-	-	-
LIGNITE	-	-	-	-	-	-	-	-	-	-

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 18: HEAT RATES FOR NEW EQUIPMENT
(MILLIONS OF BTU PER KILOWATT)

PLANT TYPE	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK
RESIDUAL-FIRED STEAM	9650	10300	10300	-
DISTILLATE-FIRED SIMPLE CYCLE	10000	10500	10500	10750
DISTILLATE-FIRED COMBINED CYCLE	7500	8000	8000	-
GAS-FIRED STEAM	10010	10760	10760	-
GAS-FIRED TURBINE	10000	10500	10500	10750
BITUMINOUS COAL (WITH SCRUBBER)	9840	10300	10300	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	9870	10350	10350	-
SUB-BITUMINOUS COAL	10230	10710	10710	-
LIGNITE	10500	11000	11000	-

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 19: HEAT VALUES OF FOSSIL FUELS
(MILLIONS OF BTU PER PHYSICAL UNITS)

FUEL	HEAT VALUE	PHYSICAL UNITS
RESIDUAL OIL	5.287	BARRELS
DISTILLATE OIL	5.825	BARRELS
NATURAL GAS	1.032	THOUSANDS OF STANDARD CUBIC FEET
COAL	22.500	TONS

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 20: NUCLEAR FUEL SUPPLY CURVE

INCREMENTAL CAPACITY SUPPORTED (MEGAWATTS)	COSTS (1975 MILLS/KWH)
84.0	5.77
19.0	5.96
37.0	6.29

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

1990 ELECTRIC UTILITIES INPUT DATA
FOR FORECASTS BASED ON
CURRENT LAW

II-245

THERE ARE FOUR CATEGORIES OF INPUT DATA ELEMENTS:

LOAD-DURATION-	FACTORS WHICH REPRESENT NONUNIFORM DEMAND REQUIREMENTS (I.E. BASE, CYCLING, DAILY PEAK, AND SEASONAL PEAK LOADS);
CAPACITY-	EXISTING AND NEW CAPACITY FOR EACH PLANT TYPE, AND MANDATED CONVERSION;
COST-	CAPITAL CHARGES, OPERATION AND MAINTENANCE COSTS, SCRUBBING COSTS, AND TRANSMISSION AND DISTRIBUTION COSTS;
PHYSICAL-	HEAT RATES AND VALUES FOR EACH PLANT AND FUEL;

IN MOST CASES THE DATA VARIES BY DOE REGION. THE DATA ELEMENTS, THEREFORE, ARE AGGREGATES, COMPUTED FROM A PLANT-BY-PLANT (OR PROJECT-BY-PROJECT) DATABASE.

TABLE 1 SHOWS REGIONAL COMPOSITION AND CAPACITY FACTORS FOR BASE, CYCLING, DAILY PEAK, AND SEASONAL PEAK LOADS AS WELL AS THE SYSTEM LOAD FACTORS (I.E. THE RATIO OF AVERAGE TO PEAK LOAD). THE RESERVE MARGIN IS 20% FOR EACH REGION. COMPOSITION FACTORS ARE THE FRACTIONS OF ELECTRIC POWER IN EACH LOAD. FOR EXAMPLE, IN REGION 1 OF ALL ELECTRICITY DEMANDED DURING THE YEAR, 68.7% IS BASE, 24.7% IS CYCLING, 4.4% IS DAILY PEAK, AND 2.2% IS SEASONAL PEAK. FIGURE 1 SHOWS A (GENERIC) LOAD-DURATION CURVE WITH THE FOUR LOADS SHOWN AS AREAS UNDER A LINEAR APPROXIMATION OF THE ACTUAL CURVE.

GENERATING FACILITIES ARE CLASSIFIED AS BASE, CYCLING, DAILY PEAK OR SEASONAL PEAK DEPENDING UPON THE ORDER IN WHICH THEY ARE BROUGHT INTO OPERATION AS DEMAND INCREASES. CAPACITY FACTORS ARE THE FRACTIONS OF TIME A PLANT IS ACTUALLY OPERATED AND NOT SHUT DOWN FOR REPAIRS OR SCHEDULED MAINTENANCE OR UNUSED FOR LACK OF SUFFICIENT DEMAND. FOR EXAMPLE, IF AN EXISTING RESIDUAL-FIRED PLANT IN REGION 1 IS OPERATED IN BASE LOAD FOR A YEAR, THE ACTUAL NUMBER OF KILOWATT-YEARS OF ELECTRICITY GENERATED, ON THE AVERAGE, WILL BE ITS CAPACITY (IN KILOWATTS) MULTIPLIED BY ITS CAPACITY FACTOR, IN THIS CASE .70. SINCE BASE PLANTS ARE OPERATED ALMOST CONTINUOUSLY WHEN THEY ARE AVAILABLE, THIS INDICATES THAT THE PLANT WILL BE SHUT DOWN APPROXIMATELY 30% OF THE TIME. FOR THIS SAME PLANT OPERATING IN CYCLING LOAD, THE CAPACITY FACTOR IS .55, REFLECTING THE PERIODS THE PLANT WILL NOT OPERATE BECAUSE THE DEMAND DOES NOT WARRANT BRINGING IN CYCLING PLANTS AS WELL AS PERIODS WHEN IT IS FORCED OUT OF SERVICE OR SHUT DOWN FOR MAINTENANCE.

TABLE 1: LOAD-DURATION CURVE DATA FOR 1990

DOE REGION	COMPOSITION FACTORS				SYSTEM LOAD FACTOR
	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK	
NW-ENG.	.687	.247	.044	.022	.570
NY/NJ	.746	.188	.042	.023	.610
MID-ATL	.766	.156	.042	.026	.580
S.-ATL	.770	.158	.043	.029	.580
MIDWEST	.758	.185	.037	.020	.610
S.-WEST	.756	.144	.067	.033	.520
CENTRAL	.749	.156	.063	.033	.530
N-CENTRAL	.783	.167	.026	.024	.580
WEST	.758	.173	.043	.026	.610
N.-WEST	.810	.130	.036	.024	.600

DATA SOURCES : COMPOSITION FACTORS; 1971 ANNUALIZED LOAD DURATION CURVES FROM "RESPECIFICATION OF THE ELECTRIC UTILITY MODEL IN PIES", GENERAL ELECTRIC COMPANY. ALSO, THE BREAK POINT GIVING BOUNDS FOR THE FOUR MODES ARE ASSIGNED EXOGENOUSLY AND ARE BASED ON HISTORICAL AND ECONOMIC CONSIDERATIONS.

OFFICE RESPONSIBLE : OFFICE OF INTEGRATIVE ANALYSIS, APPLIED ANALYSIS, EIA
APPLIED ANALYSIS, EIA

FIGURE 1: LINEAR APPROXIMATION OF A LOAD-DURATION CURVE

CAPACITY FACTORS FOR DOE REGION 1 (NEW ENGLAND)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 343-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. BYRON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 2 (NEW YORK AND NEW JERSEY)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH NO SCRUBBING REQUIRED)				
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NEO77.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSTS, EIA.

CAPACITY FACTORS FOR DOE REGION 3 (MID-ATLANTIC)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NEO77.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 4 (SOUTH ATLANTIC)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH NO SCRUBBING REQUIRED)				
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON, SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NEO77.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 5 (MIDWEST)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.950	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
 FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
 FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
 OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
 ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 6 (SOUTHWEST)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.543	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.550	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.550	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.550	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA). NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NEO77.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 7 (CENTRAL)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA). NUCLEAR : MEMO TO R. EYNOW
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NEO77.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 8 (NORTH CENTRAL)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.900	.616	.308	.082
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
LIGNITE COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FPC ORDER 181-4,
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON, SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NEO77.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 9 (WEST)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	.650	.514	.257	-
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	.650	.514	.257	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO PPC ORDER 383-4.
 FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA), NUCLEAR : MEMO TO R. EYNON
 FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NEO77.
 OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY
 ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

CAPACITY FACTORS FOR DOE REGION 10 (NORTHWEST)

	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK

EXISTING PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
GAS-FIRED TURBINE	.800	.616	.308	.082
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	-	-	.325	.087
NUCLEAR	.650	-	-	-
NEW PLANTS				

RESIDUAL-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	.800	.616	.308	.082
GAS-FIRED STEAM	.700	.548	.274	-
DISTILLATE-FIRED COMBINED CYCLE TURBINE	.800	.616	.308	-
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(WITH SCRUBBING REQUIRED)				
BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
(UNSCRUBBED USING LOW SULFUR COAL)				
SUB-BITUMINOUS COAL-FIRED STEAM	.650	.514	.257	-
HYDRO-ELECTRIC (PONDAGE)	.850	.651	.325	.087
HYDRO-ELECTRIC (PUMP STORAGE)	.850	.651	.325	.087
NUCLEAR	.650	-	-	-

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO PPC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA). NUCLEAR : MEMO TO R. EYNON
FROM H. WALTON. SUBJECT: CAPACITY FACTORS FOR NEW NUCLEAR PLANTS IN NE077.
OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION. EIA. NUCLEAR: NUCLEAR ENERGY
ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

TABLE 2 BELLOW SHOWS EXISTING CAPACITY FOR EACH PLANT TYPE IN EACH DOE REGION. TABLE 3 SHOWS THE EXISTING CAPACITIES WHICH MAY BE CONVERTED TO ALTERNATE FUEL TYPES AS WELL AS THE MANDATED CONVERSIONS ACCORDING TO THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT (ESECA) AS OF JUNE 30, 1977.

TABLE 2: EXISTING CAPACITY (MEGAWATTS) *

PLANT TYPE	DOE REGION										TOTAL
	1	2	3	4	5	6	7	8	9	10	
RESIDUAL-FIRED STEAM	10286	21489	13690	16117	10122	3676	1150	394	25074	204	102202
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	1276	8503	4473	7900	6534	543	3373	936	3567	960	38145
DISTILLATE-FIRED COMBINED CYCLE TURBINE	170	931	203	619	217	1112	70	-	1219	612	5153
GAS-FIRED STEAM	-	50	-	2981	1035	55052	4957	248	1053	35	65411
GAS-FIRED TURBINE	-	130	414	2418	1110	1806	700	44	59	50	6731
BITUMINOUS COAL-FIRED STEAM (UNSCRUBBED USING LOW SULFUR COAL)	1024	1624	-	3589	12802	-	706	1170	1772	-	22687
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBING REQUIRED)	-	-	3263	2370	1470	-	965	-	490	-	8558
BITUMINOUS COAL-FIRED STEAM (WITH NO SCRUBBING REQUIRED)	485	2950	26908	48731	40296	-	9486	2215	1616	-	132687
SUB-BITUMINOUS COAL-FIRED STEAM	-	-	-	-	13385	3338	3248	4554	-	1300	25825
LIGNITE COAL-FIRED STEAM	-	-	-	-	141	4857	-	2039	-	-	7037
HYDRO-ELECTRIC (PONDAGE)	1303	5187	1101	10445	1436	2004	636	5390	10128	23861	61491
HYDRO-ELECTRIC (PUMP STORAGE)	1607	1629	1432	921	1979	299	408	334	1646	100	10355
NUCLEAR	4199	6132	6112	12838	11391	850	2010	-	1411	1130	46073
REGIONAL AND NATIONAL TOTALS	40700	97410	115192	217858	203936	147074	55418	34648	96070	56504	1064710

*AS OF 1/1/78

DATA SOURCES : REGIONAL ELECTRIC RELIABILITY COUNCILS IN RESPONSE TO FCC ORDER 383-4.
FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA).
NUCLEAR : MEMO TO D. HULETT AND H. WALTON FROM R.G. CLARK AND A.W. REYNOLDS DATED 12/5/77.
SUBJECT: NUCLEAR POWER PLANT BUILD LIMITS AND CAPITAL COSTS FOR PIES. ATTACHMENT 1A.

OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA. NUCLEAR: NUCLEAR ENERGY ANALYSIS DIVISION, OFFICE OF SOURCE ANALYSIS, EIA.

TABLE 3: EXISTING CAPACITIES WHICH MAY BE CONVERTED
TO BURN ALTERNATE FUEL TYPES

PLANT TYPE	DOE REGION										TOTALS
	1	2	3	4	5	6	7	8	9	10	
RESIDUAL-FIRED STEAM PLANTS WHICH * MUST BE CONVERTED TO COAL	2488	6822	4063	1794	656	-	46	68	-	-	15937
GAS-FIRED STEAM PLANTS WHICH CAN BE CONVERTED TO RESIDUAL	-	-	-	1764	68	45968	2700	168	744	35	51447
RESIDUAL-FIRED STEAM WHICH CAN BE CONVERTED TO GAS	185	4539	443	6513	2288	1578	231	123	22936	53	38889
GAS-FIRED TURBINES WHICH CAN BE CONVERTED TO DISTILLATE	-	-	-	2396	628	327	531	31	59	50	4022
DISTILLATE-FIRED TURBINES WHICH CAN BE CONVERTED TO GAS	291	3208	386	2851	2610	106	616	314	2399	256	13037
GAS-FIRED STEAM PLANTS WHICH * MUST BE CONVERTED TO COAL	-	-	-	-	-	-	685	-	-	-	685
REGIONAL AND NATIONAL TOTALS	2964	14569	4892	15318	6250	47979	4809	704	26138	394	124017

*MANDATED CONVERSIONS ACCORDING TO THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT
(ESEA) AS OF JUNE 30, 1977.

DATA SOURCE : OFFICE OF COAL UTILIZATION.

OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, EIA

TABLE 4 SHOWS RETIREMENT RATES FOR EXISTING FOSSIL FUEL FIRED FACILITIES IN 1990.
FOSSIL FUEL PLANTS COAL, OIL AND GAS FIRED FACILITIES.

TABLE 4: RETIREMENT RATES FOR FOSSIL FUEL FIRED PLANTS (PERCENT)

YEAR	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
1990	.023	.047	.016	.011	.014	.024	.028	.001	.039	.008

DATA SOURCE : ORDER 383, REPORT BY THE REGIONAL ELECTRIC RELIABILITY COUNCILS
IN RESPONSE TO PPC ORDER 383-4. FILED WITH THE ECONOMIC REGULATORY ADMINISTRATION (ERA).
PROJECTED ADDITIONS AND RETIREMENTS.

OFFICE RESPONSIBLE : ELECTRIC POWER ANALYSIS DIVISION, OFFICE OF ENERGY SOURCE ANALYSIS, EIA.

TABLES 5 AND 6 SHOW COMMITTED AND DEFERRABLE CAPACITIES FOR COAL, RESIDUAL, DISTILLATE, NATURAL GAS AND NUCLEAR PLANTS. TABLE 7 SHOWS BUILD LIMITS FOR NUCLEAR, COAL, RESIDUAL AND HYDRO-ELECTRIC PLANTS. COMMITTED PROJECTS HAVE ESSENTIALLY ALL OF THE CAPITAL SUNK AND CONSTRUCTION IS NEARLY COMPLETED. DEFERRABLE PROJECTS HAVE SUNK APPROXIMATELY 10% OF THEIR CAPITAL REQUIREMENTS AND GROUND HAS BEEN BROKEN; HOWEVER THEY MAY BE DEFERRED UNTIL AFTER THE FORECAST YEAR IF IT IS ECONOMICAL TO DO SO. NEW PROJECTS HAVE NO CAPITAL SUNK, BUT THEY MAY HAVE ENTERED THE PLANNING STAGE. SINCE ALL NUCLEAR PLANTS THAT WOULD BE COMPLETE BY 1985 HAVE ALREADY BEEN REGISTERED WITH THE U.S. NUCLEAR REGULATORY COMMISSION, THERE ARE ASSOCIATED LIMITS IN THE MODEL. THE LIMITS FOR NUCLEAR CAPACITY IN 1990, FOR COAL-FIRED STEAM IN 1985, FOR RESIDUAL-FIRED STEAM AND HYDRO-ELECTRIC IN 1985 AND 1990 ARE ESTIMATED BOUNDS ON THE GROWTH OF NUCLEAR, COAL-FIRED STEAM, RESIDUAL-FIRED STEAM AND HYDRO-ELECTRIC CAPACITY, RESPECTIVELY. ALL OTHER PLANT TYPES HAVE NO LIMITS FOR 1985 AND 1990 BECAUSE THOSE YEARS ARE BEYOND THEIR PLANNING CYCLES. EXCEPT, NO NEW GAS STEAM OR GAS TURBINE PLANTS MAY BE BUILT, OTHER THAN THE COMMITTED PLANTS SHOWN IN TABLE 5.

TABLE 5: COMMITTED* CAPACITY FOR 1990
(MEGAWATTS)

PLANT TYPE	DOE REGION										TOTALS
	1	2	3	4	5	6	7	8	9	10	
NUCLEAR	3524	8253	10121	33315	20114	10664	3700	330	8340	4914	103275
RESIDUAL-FIRED STEAM	600	850	-	688	2340	480	-	-	292	198	5448
BITUMINOUS COAL-FIRED STEAM (WITHOUT SCRUBBERS)	-	-	400	1532	1892	-	1250	600	1200	-	6874
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBERS)	-	-	2077	2905	4853	-	-	-	-	-	9835
SUB-BITUMINOUS COAL-FIRED STEAM	-	-	-	-	897	4541	2066	2090	-	-	9594
LIGNITE COAL-FIRED STEAM	-	-	-	-	641	2685	-	339	-	-	3665
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	6	-	200	300	405	239	778	246	198	-	2372
DISTILLATE-FIRED COMBINED CYCLE TURBINE	230	-	-	-	-	-	-	-	809	-	1039
GAS-FIRED STEAM	-	-	-	-	-	550	-	-	-	-	550
REGIONAL AND NATIONAL TOTALS	4360	9103	12798	38740	31142	19159	7794	3605	10839	5112	142652

*ALL CAPITAL SUNK AND CONSTRUCTION NEARLY COMPLETED

DATA SOURCES FOR TABLES 5,6,7,8,9 :

FORM 4 (MONTHLY PUBLICATION) GENERATION OF ENERGY, CONSUMPTION OF ENERGY AND FUEL STOCKS, FILED WITH EIA. DATA FOR SCRUBBERS DERIVED FROM THE ENVIRONMENTAL PROTECTION AGENCY STANDARDS FOR ALL COAL PLANTS. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL. NUCLEAR - MEMO FROM G. CLARK (NUCLEAR ENERGY ANALYSIS DIVISION) THRU D. HULETT AND H. WALTON TO HARVEY GREENBERG. SUBJECT: "NUCLEAR POWER BUILD LIMITS AND CAPITAL COSTS FOR PIES". UNDATED BUT C. 12/5/77, REVISED 1/11/78. THE NUCLEAR ENERGY ANALYSIS DIVISION OF EIA OBTAINS THEIR BASIC DATA FOR BUILD LIMITS FROM FROM THE U.S. NUCLEAR REGULATORY COMMISSION.

TABLE 6: DEFERRABLE* CAPACITY FOR 1990
(MEGAWATTS)

PLANT TYPE	DOR REGION										TOTALS
	1	2	3	4	5	6	7	8	9	10	
NUCLEAR	-	2134	-	900	-	-	-	-	-	-	3034
BITUMINOUS COAL-FIRED STEAM	-	-	1300	2710	2143	1100	1275	400	700	-	9628
SUB-BITUMINOUS COAL-FIRED STEAM	-	-	-	-	583	6346	1910	2780	-	500	12116
LIGNITE COAL-FIRED STEAM	-	-	-	-	555	1978	-	294	-	-	2828
REGIONAL AND NATIONAL TOTALS	-	2134	1300	3610	3279	9424	3185	3474	700	500	27606

*APPROXIMATELY 10% OF CAPITAL SUNK, GROUND HAS
BEEN BROKEN AND PLANT SCHEDULED TO OPERATE
BY 1990

TABLE 7: NEW PLANT CAPACITY LIMITS (1990)
(MEGAWATTS)

PLANT TYPE	DOR REGION										TOTALS
	1	2	3	4	5	6	7	8	9	10	
NUCLEAR	2344	1150	181	-	3784	2113	250	-	974	3761	14557
RESIDUAL-FIRED STEAM	-	-	610	-	-	-	-	-	-	864	1474
LIGNITE COAL-FIRED STEAM	-	-	-	-	1703	-	-	-	-	-	1703
HYDRO-ELECTRIC (PONDAGE)	384	32	287	1180	150	174	42	1349	1416	9476	14490
HYDRO-ELECTRIC (PUMP STORAGE)	36	2350	6054	4415	-	446	1199	200	2961	650	18311
REGIONAL AND NATIONAL TOTALS	2764	3532	7132	5595	5637	2733	1491	1549	5351	14751	50535

TABLE 8 SHOWS THE OPERATION AND MAINTENANCE COSTS FOR EACH PLANT TYPE. TABLE 9 SHOWS REVENUE REQUIREMENTS FOR EXISTING EQUIPMENT. TABLE 10 SHOWS THE CAPITAL COSTS FOR NEW PLANTS IN 1990. TABLES 11 AND 12 SHOW ASSOCIATED CHARGE FACTORS. THE REVENUE REQUIREMENT CHARGE FACTOR IS USED IN THE RATE BASE COMPUTATION (WHICH IS AVERAGE, RATHER THAN MARGINAL, COST). THE INVESTMENT CHARGE FACTOR IS USED IN DETERMINING THE DECISION OF WHICH PLANT IS TO BE BUILT IF MORE CAPACITY IS REQUIRED TO MEET DEMAND. THE REVENUE REQUIREMENT CHARGE FACTORS ARE REPORTED BY REGION, BECAUSE THESE CHARGE FACTORS ARE BASED ON AVERAGE COSTS OF PRODUCING ELECTRICITY, RATHER THAN THE MARGINAL COSTS FOR ANY PARTICULAR PLANT TYPE. ON THE OTHER HAND, THE INVESTMENT CHARGE IS REPORTED BY PLANT TYPE BECAUSE OF THE DIFFERENT INCOME TAX TREATMENT EACH PLANT TYPE RECEIVES UNDER THE IRS CODE. TABLE 13 SHOWS TRANSMISSION AND DISTRIBUTION COSTS AS WELL AS EFFICIENCY RATES (E.G. IN REGION 1 FOR EVERY KILOWATT GENERATED, ONLY .914 KILOWATTS IS DISTRIBUTED.)

TABLE 8: OPERATION AND MAINTENANCE COSTS
(1975 MILLS PER KILOWATT HOUR)

PLANT TYPE	O&M COST
RESIDUAL-FIRED STEAM	.90
BITUMINOUS COAL* (WITH SCRUBBER)	2.80
(WITHOUT SCRUBBER)	1.10
SUB-BITUMINOUS COAL** (WITH SCRUBBER)	2.00
(WITHOUT SCRUBBER)	1.10
LIGNITE COAL*** (WITH SCRUBBER)	2.00
(WITHOUT SCRUBBER)	1.10
DISTILLATE-FIRED SIMPLE CYCLE	2.75
DISTILLATE-FIRED COMBINED CYCLE	1.25
GAS-FIRED TURBINE	2.75
GAS-FIRED STEAM	.50
HYDRO-ELECTRIC (PONDAGE)	.70
HYDRO-ELECTRIC (PUMP STORAGE)	.70
NUCLEAR	1.65

* BITUMINOUS PLANTS MAY BE SCRUBBED OR UNSCRUBBED
EXCEPT FOR NEW PLANTS IN DOE REGIONS 8, 9 AND 10
WHICH MUST BE SCRUBBED AND USE LOW SULPHUR COAL

** SUB-BITUMINOUS PLANTS ARE ASSUMED TO BE UNSCRUBBED
EXCEPT FOR NEW PLANTS IN DOE REGIONS 8, 9 AND 10
WHICH ARE ASSUMED TO BE SCRUBBED

*** NEW LIGNITE PLANTS ARE ASSUMED TO BE SCRUBBED;
WHILE EXISTING PLANTS ARE ASSUMED TO BE UNSCRUBBED

TABLE 9: REVENUE REQUIREMENTS IN 1990
FOR EXISTING ASSETS

DOE REGION	REVENUE REQUIREMENTS (MILLIONS OF 1975 \$)
-----	-----
1	601
2	1596
3	1685
4	1896
5	2326
6	1061
7	590
8	369
9	1072
10	493

TABLE 10: CAPITAL COSTS OF NEW PLANTS IN 1990
(1975 DOLLARS PER KILOWATT)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
-----	---	---	---	---	---	---	---	---	---	---
RESIDUAL-FIRED STEAM	415	438	393	373	409	375	406	391	522	403
BITUMINOUS COAL (WITH SCRUBBER) *	556	588	529	501	549	503	545	524	567	541
BITUMINOUS COAL (WITHOUT SCRUBBER) *	447	473	424	402	442	405	438	524	567	541
SUB-BITUMINOUS COAL *	485	513	461	436	479	439	476	560	605	578
LIGNITE COAL *	591	591	591	591	591	591	591	591	591	591
DISTILLATE-FIRED SIMPLE CYCLE	163	163	163	163	163	163	163	163	163	163
DISTILLATE-FIRED COMBINED CYCLE	312	312	312	312	312	312	312	312	312	312
GAS-FIRED STEAM	350	350	350	285	315	285	315	330	325	325
HYDRO-ELECTRIC (PONDAGE)	400	340	470	420	450	520	490	330	520	220
HYDRO-ELECTRIC (PUMP STORAGE)	400	340	470	420	450	520	490	330	620	220
NUCLEAR (NEW)	695	810	695	570	695	635	670	-	705	790
NUCLEAR (DEFFERRABLE)	-	585	-	599	-	-	-	-	-	-

* CAPITAL COST OF DEFFERRABLE COAL PLANTS IS .90 OF NEW PLANT COSTS

NOTE: RETROFITTING AN EXISTING BITUMINOUS COAL PLANT USING HIGH
SULFUR COAL IN BASELOAD COSTS \$131 PER KILOWATT

DATA SOURCES : ANNUAL REPORT FOR DETAILED FINANCIAL AND OPERATING DATA
SUBMITTED BY ALL CLASS A AND B PRIVATE ELECTRIC UTILITIES. FILED WITH EIA. FPC PUBLICATION.
PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES
AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE,
WASHINGTON, D.C.

CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE
ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING
INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 11: CAPITAL CHARGE RATES (PERCENT) FOR
REVENUE REQUIREMENTS

DOE REGION	CAPITAL CHARGE RATES FOR REVENUE REQUIREMENTS

1990	-----
1	14.0
2	17.4
3	12.7
4	10.0
5	13.3
6	11.9
7	12.9
8	9.9
9	11.7
10	6.3

DATA SOURCES : STUDY CONDUCTED BY THE OAKRIDGE NATIONAL LABORATORIES USING THE
COMPUTER MODEL CONCEPT 4

NUCLEAR: MEMO FROM G. CLARK TO H. GREENBERG DATED 5/24/77

PRODUCTION FIGURES ARE TAKEN FROM THE PIRS OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED
STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974" AMERICAN PETROLEUM INSTITUTE
WASHINGTON, D.C.

CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL
PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975".
THESE DATA ARE USED AS INPUT FOR THE PIRS OIL AND GAS MODEL.

TABLE 12: CAPITAL CHARGE RATES FOR INVESTMENT
DECISIONS (ANNUAL PERCENT)

PLANT TYPE	CAPITAL CHARGE RATE FOR INVESTMENT DECISIONS
RESIDUAL-FIRED STEAM	11.4
BITUMINOUS COAL-FIRED STEAM (WITH SCRUBBER)	12.5
BITUMINOUS COAL-FIRED STEAM (WITHOUT SCRUBBER)	11.4
DISTILLATE-FIRED SIMPLE CYCLE TURBINE	10.5
DISTILLATE-FIRED COMBINED CYCLE TURBINE	10.9
GAS-FIRED STEAM	11.4
HYDRO	10.2
SUB-BITUMINOUS COAL-FIRED STEAM	11.4
LIGNITE COAL-FIRED STEAM	11.4
NUCLEAR	11.4

DATA SOURCES : STUDY CONDUCTED BY THE OAKRIDGE NATIONAL LABORATORIES USING THE
COMPUTER MODEL CONCEPT 4

NUCLEAR: MEMO FROM G. CLARK TO H. GREENBERG DATED 5/24/77

PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED
STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974" AMERICAN PETROLEUM INSTITUTE
WASHINGTON, D.C.

CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL
PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975".
THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 13: TRANSMISSION AND DISTRIBUTION DATA

DOE REGION	AVERAGE EFFICIENCY RATE (PERCENTAGE)	OPERATION AND MAINTENANCE COST (MILLS/KILOWATT-HOUR)	CAPITAL COST (\$/KILOWATT)
1	91.40	5.7	493
2	91.80	5.2	626
3	92.40	4.7	304
4	91.40	5.0	262
5	92.30	4.3	361
6	92.50	4.6	228
7	91.20	5.5	354
8	88.30	5.6	309
9	90.80	5.3	514
10	91.00	5.6	279

DATA SOURCES : ANNUAL REPORT FOR DETAILED FINANCIAL AND OPERATING DATA SUBMITTED BY ALL CLASS A AND B PRIVATE ELECTRIC UTILITIES. FILED WITH ETA. PPC PUBLICATION. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON, D.C.

CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLES 14, 15, 16 AND 17 SHOW AGGREGATE HEAT RATES FOR EXISTING EQUIPMENT FOR BASE, CYCLING, DAILY PEAK AND SEASONAL PEAK LOADS, RESPECTIVELY. TABLE 18 SHOWS HEAT RATES* FOR NEW FACILITIES (SAME FOR EACH REGION), AND TABLE 19 SHOWS HEAT VALUES FOR FOSSIL FUELS. THE RATIO OF HEAT RATE TO HEAT VALUE DETERMINES THE AMOUNT OF FUEL NEEDED TO GENERATE ONE KILOWATT. SPECIFICALLY, THE FUEL REQUIRED TO OPERATE A PLANT TO GENERATE ONE MEGAWATT OF ELECTRICITY IN A PARTICULAR LOAD (I.E. BASE, CYCLING, DAILY PEAK OR SEASONAL PEAK) IS:

$$\text{FUEL REQUIREMENT} = (\text{HEAT RATE}) / (\text{HEAT VALUE})$$

WHERE THE AMOUNT OF FUEL REQUIRED IS MEASURED IN PHYSICAL UNITS (I.E. TONS, BARRELS, THOUSANDS OF STANDARD CUBIC FEET, ETC.)

TABLE 20 SHOWS NUCLEAR FUEL SUPPLY DATA.

* THE HEAT RATE IS THE ENERGY REQUIRED PER HOUR OF OPERATION, WHERE ENERGY IS MEASURED BY BRITISH THERMAL UNITS (BTU)

TABLE 14: HEAT RATES FOR EXISTING EQUIPMENT OPERATED IN BASE LOAD
(BTU PER KILOWATT-HOUR)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
RESIDUAL-FIRED STEAM	10000	10300	10700	10000	12100	10300	11200	14500	9800	11300
DISTILLATE-FIRED SIMPLE CYCLE	14500	14600	12500	13000	14500	12800	12500	12000	15700	12300
DISTILLATE-FIRED COMBINED CYCLE	8500	8500	8500	8500	8500	8500	8500	-	8500	8500
GAS-FIRED STEAM	12500	10900	10900	11100	13400	10100	11300	11900	10400	11500
GAS-FIRED TURBINE	14000	15400	14300	16500	14700	13000	14700	12200	13700	12500
BITUMINOUS COAL (WITH SCRUBBER)	10510	11000	10300	10300	10500	-	10900	11600	10700	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	10110	10500	9900	9900	10200	-	10500	11200	10300	-
SUB-BITUMINOUS COAL	-	-	-	-	10300	10100	10600	10700	-	10700
LIGNITE	-	-	-	-	12400	10500	-	11900	-	-

DATA SOURCES : COMPUTER MODEL DEVELOPED BY ROBERT BORLICK AND DAVID HATCHER
(ELECTRIC POWER ANALYSIS DIVISION OF EIA)
PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES
AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974", AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C.
CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE
ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING
INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT TO THE PIES OIL AND GAS MODEL.

TABLE 15: HEAT RATES FOR EXISTING EQUIPMENT OPERATED IN CYCLING LOAD
(BTU PER KILOWATT-HOUR)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
RESIDUAL-FIRED STEAM	10500	10800	11200	10500	12600	10800	11700	15000	10300	11500
DISTILLATE-FIRED SIMPLE CYCLE	14500	15100	13000	13500	15000	13300	13000	12500	16200	12500
DISTILLATE-FIRED COMBINED CYCLE	9000	9000	9000	9000	9000	9000	9000	-	9000	9000
GAS-FIRED STEAM	13000	11400	11400	11600	13900	10600	11800	12400	10900	12300
GAS-FIRED TURBINE	14500	15900	14800	17000	15200	13500	15200	12700	14200	13100
BITUMINOUS COAL (WITH SCRUBBER)	11000	11500	10800	10800	11000	-	11400	12100	11200	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	10600	11000	10400	10400	10700	-	11000	11700	10800	-
SUB-BITUMINOUS COAL	-	-	-	-	10800	10600	11100	11200	-	11200
LIGNITE	-	-	-	-	12900	11000	-	12400	-	-

DATA SOURCES : FINANCIAL STATEMENT, ANNUAL REPORT, PPC FORM 1
PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA
FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED
STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE
WASHINGTON, D.C.
CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE
ANNUAL PUBLICATION, "JOINT ASSOCIATION SURVEY OF THE U.S. OIL AND GAS PRODUCING INDUSTRY FOR 1975".
THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 16: HEAT RATES FOR EXISTING EQUIPMENT OPERATED IN DAILY PEAK LOAD
(BTU PER KILOWATT-HOUR)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
RESIDUAL-FIRED STEAM	10500	10800	11200	10500	12600	10800	11700	15000	10300	11500
DISTILLATE-FIRED SIMPLE CYCLE	14500	15100	13000	13500	15000	13300	13000	12500	16200	12500
DISTILLATE-FIRED COMBINED CYCLE	9000	9000	9000	9000	9000	9000	9000	-	9000	9000
GAS-FIRED STEAM	13000	11400	11400	11600	13900	10600	11800	12400	10900	12300
GAS-FIRED TURBINE	14500	15900	14800	17000	15200	13500	15200	12700	14200	13100
BITUMINOUS COAL (WITH SCRUBBER)	11000	11500	10800	10800	11000	-	11400	12100	11200	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	10600	11000	10400	10400	10700	-	11000	11700	10800	-
SUB-BITUMINOUS COAL	-	-	-	-	10800	10600	11100	11200	-	11200
LIGNITE	-	-	-	-	12900	11000	-	12400	-	-

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 17: HEAT RATES FOR EXISTING EQUIPMENT OPERATED IN SEASONAL PEAK LOAD
(BTU PER KILOWATT-HOUR)

PLANT TYPE	DOE REGION									
	1	2	3	4	5	6	7	8	9	10
RESIDUAL-FIRED STEAM	-	-	-	-	-	-	-	-	-	-
DISTILLATE-FIRED SIMPLE CYCLE	14500	15100	13000	13500	15000	13300	13000	12500	16200	12500
DISTILLATE-FIRED COMBINED CYCLE	-	-	-	-	-	-	-	-	-	-
GAS-FIRED STEAM	-	-	-	-	-	-	-	-	-	-
GAS-FIRED TURBINE	14500	15900	14800	17000	15200	13500	15200	12700	14200	13100
BITUMINOUS COAL (WITH SCRUBBER)	-	-	-	-	-	-	-	-	-	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	-	-	-	-	-	-	-	-	-	-
SUB-BITUMINOUS COAL	-	-	-	-	-	-	-	-	-	-
LIGNITE	-	-	-	-	-	-	-	-	-	-

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 18: HEAT RATES FOR NEW EQUIPMENT
(MILLIONS OF BTU PER KILOWATT)

PLANT TYPE	BASE	CYCLING	DAILY PEAK	SEASONAL PEAK
RESIDUAL-FIRED STEAM	9650	10300	10300	-
DISTILLATE-FIRED SIMPLE CYCLE	9000	9500	9500	9750
DISTILLATE-FIRED COMBINED CYCLE	7000	7500	7500	-
GAS-FIRED STEAM	10010	10760	10760	-
GAS-FIRED TURBINE	9000	9500	9500	9750
BITUMINOUS COAL (WITH SCRUBBER)	9840	10300	10300	-
BITUMINOUS COAL (WITHOUT SCRUBBER)	9870	10350	10350	-
SUB-BITUMINOUS COAL	10230	10710	10710	-
LIGNITE	10500	11000	11000	-

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 19: HEAT VALUES OF FOSSIL FUELS
(MILLIONS OF BTU PER PHYSICAL UNITS)

FUEL	HEAT VALUE	PHYSICAL UNITS
RESIDUAL OIL	6.287	BARRELS
DISTILLATE OIL	5.825	BARRELS
NATURAL GAS	1.032	THOUSANDS OF STANDARD CUBIC FEET
COAL	22.500	TONS

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

TABLE 20: NUCLEAR FUEL SUPPLY CURVE

INCREMENTAL CAPACITY SUPPORTED (MEGAWATTS)	COSTS (1975 MILLS/KWH)
79.0	6.04
46.0	6.29
40.0	6.41
12.0	6.53
13.0	6.90
15.0	7.15

DATA SOURCES : FORM 4 DATA BASE, "MONTHLY PLANT GENERATION STATISTICS", AND FORM 423, "COST AND QUALITY OF FUEL DELIVERED". BOTH ARE FEDERAL POWER COMMISSION PUBLICATIONS. MOST MOST RECENT ISSUES USED FOR EIA ANNUAL ADMINISTRATOR'S REPORT. PRODUCTION FIGURES ARE TAKEN FROM THE PIES OIL AND GAS MODEL WHICH USES DATA FROM "RESERVES OF CRUDE OIL, NATURAL GAS LIQUIDS AND NATURAL GAS IN THE UNITED STATES AND CANADA AND CAPACITY AS OF DECEMBER 31, 1974". AMERICAN PETROLEUM INSTITUTE, WASHINGTON D.C. CAPITAL FIGURES ARE DERIVED FROM DATA GATHERED BY THE FROM DATA GATHERED BY THE AMERICAN PETROLEUM INSTITUTE ANNUAL PUBLICATION "JOINT ASSOCIATION SURVEY OF THE OIL AND GAS PRODUCING INDUSTRY FOR 1975". THESE DATA ARE USED AS INPUT FOR THE PIES OIL AND GAS MODEL.

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