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**National Petroleum
Product Supply and
Demand : 1975**

Technical Report 75-5

**Office of
Policy and Analysis,
Quantitative Methods**

**Federal Energy
Administration**

**Washington
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NATIONAL PETROLEUM PRODUCT SUPPLY AND DEMAND

1975

Technical Report - F.E.A. - E.A.T.R. - 75-5

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NATIONAL SUPPLY AND DEMAND BALANCE

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This report presents a documentation of the short-term petroleum product supply and demand forecasting methodology used at the Federal Energy Administration. This documentation replaces that provided in "National Petroleum Product Supply and Demand," October 1974 Through 1975, Technical Report 74-5, FEA, November 8, 1974. In addition two petroleum product supply and demand forecasts are presented for the period February through June 1975 by month and for the remainder of 1975 by quarter. The two forecasts represent a base case and a "policy option" case which incorporates most of the policy actions outlined by the President in the energy portion of the State of the Union Message, January 15, 1975. The two cases are summarized as follows:

Base Case -- petroleum product demand is based upon econometric estimates of the relationship between consumption demand and important macroeconomic variables. The base case demand estimates additionally include adjustments for the effect of higher prices and adjustments to account for increases in demand due to expected natural gas curtailments.

Policy Option Case -- the base case demand is adjusted to account for increases in the relative prices of petroleum products due to a schedule of import fees, tariffs, and the decontrol of the prices of "old crude." In addition, further downward adjustments in base case demand were made to account for electric utilities' conversion to coal and the elimination of fuel switching to petroleum due to natural gas curtailments. A small increment to forecast, base case domestic crude production was added to account for the anticipated development of Elk Hills.

These two cases were investigated using the petroleum product supply and demand balance simulation. The simulation may be summarized as follows:

Estimates of product demand and product availability are compared. Of the various sources of supply (regional domestic production, inventory drawdown, interregional transfers, and imports), the particular supply allocation selected by the forecasting procedure is such that domestic product production is maintained at a high level, and interregional, interproduct, and intertemporal shortfalls*(if any) are minimized. All products are subject to historically determined constraints upon upper and lower inventory levels, available yield patterns, maximum available imports, and feasible interregional allocations. If no shortfall is forecast, the forecasting procedure has identified one feasible means of meeting the demand for a product. In fact, the market place may determine a different allocation pattern to meet a given demand. The allocation pattern selected for this forecast tends to depend heavily upon domestic production and to depend less upon imports of products.

The Forecasts

The supply and demand forecasts corresponding to the base case and the policy option case are summarized in the following two tables.

* "Shortfall" identifies demand which cannot be satisfied within the constraints of the simulation. The relatively small shortfalls identified can be met by slightly higher imports. Accordingly, any such "shortfalls" have been added to imports.

Table 1
Base Case Scenario
(thousands of barrels per day)

Scenario	1975								Year 1975
	Jan.	Feb.	Mar.	Apr.	May	June	3Q	4Q	
Demand:									
Motor Gasoline	—	6163	6387	6542	6665	6939	6880	6614	—
Distillate	—	3978	3561	2896	2533	2208	2215	3457	—
Residual	—	2651	2477	2116	1927	1986	1935	2401	—
Kerojet	—	719	788	788	819	817	811	835	—
Naphthajet	—	209	209	266	236	241	244	276	—
Petrochemicals	—	331	332	337	337	339	337	350	—
Liquified Gases	—	1616	1342	1168	1089	973	1025	1470	—
Other products	—	2042	1996	1974	2109	2300	2383	2178	—
Total all products	<u>17,425*</u>	<u>17,709</u>	<u>17,092</u>	<u>16,087</u>	<u>15,715</u>	<u>15,803</u>	<u>15,830</u>	<u>17,581</u>	<u>16,667</u>
Domestic Supply:									
Crude	—	8663	8663	8622	8623	8623	8575	8539	—
NGL	—	1676	1676	1657	1657	1657	1650	1656	—
Gain	<u>—</u>	<u>321</u>	<u>359</u>	<u>350</u>	<u>341</u>	<u>350</u>	<u>405</u>	<u>410</u>	<u>—</u>
Total	<u>10,666*</u>	<u>10,660</u>	<u>10,698</u>	<u>10,629</u>	<u>10,621</u>	<u>10,630</u>	<u>10,630</u>	<u>10,605</u>	<u>10,633</u>
Total Domestic Supply	<u>10666*</u>	<u>10660</u>	<u>10698</u>	<u>10629</u>	<u>10621</u>	<u>10630</u>	<u>10630</u>	<u>10605</u>	<u>10633</u>
Change in inventories	-501*	-1000	-32	+175	+471	+257	+445	-259	0
Imports	<u>6258*</u>	<u>6049</u>	<u>6362</u>	<u>5633</u>	<u>5565</u>	<u>5430</u>	<u>5645</u>	<u>6717</u>	<u>6034</u>
Total Supply**	<u>17,425</u>	<u>17,709</u>	<u>17,092</u>	<u>16,087</u>	<u>15,715</u>	<u>15,803</u>	<u>15,830</u>	<u>17,581</u>	<u>16,667</u>

* Constructed from January 31, 1975, 4-week average as given in Petroleum Situation Report, week ended: January 31, 1975, FEA. Complete detail not available.

** Total Supply calculated: Total Domestic Supply - (Change in inventories) + Imports.

Table 2
Policy Option Scenario
(thousands of barrels per day)

Scenario	1975								Year 1975
	Jan.	Feb.	Mar.	Apr.	May	June	3Q	4Q	
Demand:									
Motor Gasoline	—	6131	6308	6417	6387	6662	6603	6336	—
Distillate	—	3978	3557	2886	2421	2080	2055	3243	—
Residual	—	2625	2441	2043	1778	1815	1718	2118	—
Kerojet	—	719	786	783	809	803	793	813	—
Naphthajet	—	209	208	265	234	236	238	269	—
Petrochemicals	—	331	330	333	329	328	322	333	—
Liquefied Gases	—	1615	1340	1164	1080	962	1009	1445	—
Other products	—	2041	1992	1965	2089	2270	2344	2143	—
Total all products	17,425*	17,649	16,962	15,856	15,127	15,156	15,082	16,700	16,119
Domestic Supply:									
Crude	—	8703	8703	8702	8703	8703	8695	8699	—
NGL	—	1676	1676	1657	1657	1657	1650	1656	—
Gain	—	296	326	329	331	342	371	359	—
Total	10,666*	10,675	10,705	10,688	10,691	10,702	10,716	10,714	10,701
Total Domestic Supply	10666*	10675	10705	10688	10691	10702	10716	10714	10701
Change in inventories	-501*	-1000	-32	+175	+471	+257	+445	-259	0
Imports	16258*	5974	6225	5343	4907	4711	4811	5727	5418
Total Supply**	17,425*	17,649	16,962	15,856	15,127	15,156	15,082	16,700	16,119

* Constructed from January 31, 1975, 4-week average as given in Petroleum Situation Report, week ended: January 31, 1975, FEA.

** Total Supply calculated: Total Domestic Supply - (change in inventories) + Imports.

Of continuing concern is the forecast of petroleum imports. Two comparisons are of interest: the currently forecast base case import rate compared to that forecast in the fall of 1974 as documented in Technical Report 74-5; and the currently forecast base case rate as compared to that forecast for the policy option case.

Revisions in the Base Case Forecast

The fundamental determinants of different import rate forecasts are the underlying, alternative forecasts of petroleum product demand. Given that domestic sources of supply remain fairly stable over the near term, changes in import rates ultimately correspond to changes in petroleum product demand rates. Seasonal differences between changes in demand and changes in imports arise due to inventory policies (i.e., an increase or decrease in demand may be satisfied in the very short run by an increased or decreased dependence upon domestic stocks of crude and products). Although inventory policies may alter the seasonal pattern of demand rates as compared to import rates, such differences tend to disappear in measurements taken at annual rates after domestic production has been taken into account.

In the particular case of the year 1975, the forecast of the relationship between demand rates and import rates is significantly influenced by the somewhat unusual inventory policies observed in the fourth quarter of 1974 and the beginning of 1975. These inventory policies are projected for the remainder of 1975. This circumstance is highlighted by the comparison of the revisions in the base case demand forecast as compared to revisions in the import forecast. These comparisons are given in the following tables. For 1975 as a whole, the forecast of petroleum product demand has been revised downwards by 930 MBD* when compared to the forecast presented in Technical Report 74-5; however, import rates have been revised downwards by a lesser amount: 673 MBD. This difference is attributable to a lesser dependence on inventories in the current forecast.

* Thousands of Barrels Per Day

Table 3

Base Case Demand Forecasts
(thousands of barrels per day)

Forecast \ Period	1975				1975 Year
	1Q	2Q	3Q	4Q	
T.R. 74-5	18,661	16,639	16,642	18,457	17,597
Current	17,399	15,868	15,830	17,581	16,667
Difference	-1,262	-771	-812	-876	-930

Table 4

Base Case Import Forecasts
(thousands of barrels per day)

Forecast \ Period	1975				1975 Year
	1Q	2Q	3Q	4Q	
T.R. 74-5	7,087	6,169	6,667	6,908	6,707
Current	6,229	5,543	5,645	6,717	6,034
Difference	-858	-626	-1,022	-191	-673

Table 5

Revised Estimate of Dependence on Domestic Sources
(thousands of barrels per day)

Forecast \ Period	1975				1975 Year
	1Q	2Q	3Q	4Q	
Demand reductions	1,262	771	813	876	930
Import reductions	858	626	1,022	191	673
Domestic source reductions*	404	145	-210	685	257

* Includes adjustments in refinery gain.

The inventory profile assumed for the current forecast maintains no net inventory changes for the year as a whole. The inventory profile assumed for Technical Report 74-5 assumed a net reduction in stock levels over 1975 at the average rate of 233 MBD. As a result, the revisions in the current import forecast include an upward adjustment to compensate for decreased dependence on stocks as well as the downwards adjustment associated with the expected decline in economic activity. Table 3 presents the adjustments to the demand forecast associated with amendments to the macroeconomic forecast.* Tables 4 and 5 allocate the expected demand reduction between reduced import rates and reduced dependence on inventories.

The Expected Impact of the Policy Option

The policy option scenario presented here affects current petroleum demand through higher prices due to import fees, tariffs, and decontrol; the elimination of petroleum demand induced by natural gas curtailments; and reductions in petroleum demand due to conversion to coal. Domestic supply is revised upwards due to the projected development of Elk Hills. Since the current base case and policy option scenarios are assumed to follow the same profile of stock changes, differences in import rates are attributable to the adjustments in supply and demand associated with the policy option. Table 6 documents the import rate differences in terms of these components.

Uncertainties in the Current Forecasts

The major uncertainty in the current forecasts is associated with inventory policies. Inventories of crude and products are currently being maintained at high levels compared to seasonal norms. Since the import forecasts were made on the assumption that there was no net change in stock levels over the years, and since the current stock levels are fairly high, the import forecasts should be considered as on the high side assuming that the demand forecasts and domestic production forecasts are otherwise fairly accurate. If macroeconomic activity suffers additional, unexpected declines or if the high inventory levels become uneconomic, actual import rates would tend to fall below those rates forecasted here.

* The revised demand forecast also includes a revision in the price effect adjustment to residual fuel oil demand. Changes in the underlying macroeconomic variables themselves are given in Chapter 4.

Table 6

Reductions in Imports in 1975
Due to the Policy Option Scenario
(thousands of barrels per day)

	1975				Year
	1Q	2Q	3Q	4Q	
Current Base Case Imports	6,229	5,545	5,645	6,717	6,034
Policy Option Components					
Coal conversion	-25	-49	-74	-98	-61
Suspension of Gas Curtailments	0	-96	-150	-147	-98
Effects of Higher Prices	-48	-346	-524	-636	-387
Development of Elk Hills	-26	-80	-120	-160	-97
Refinery Gain Adjustment	+28	+13	+34	+51	+31
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Total Reductions	-71	-558	-834	-990	-612
Policy Option Case Imports	6,158	4,987	4,811	5,727	5,422

INTRODUCTION

This report presents and documents current forecasts of product supply and demand for the remainder of 1975. Two forecasts are presented: A Base Case and a Policy Option Case. The basic purpose of this report is to thoroughly document the methodology used in making such forecasts.

A secondary purpose is to report on changes in the forecasting methodology which have occurred since the last report in this series of national petroleum product supply and demand reports, Technical Report 74-5. Important changes are:

- the inclusion of price effects in the residual fuel equation;
- the inclusion of updated initial stock levels and refinery capacities;
- the inclusion of a section which compares previous forecasts with observed supply and demand;
- the inclusion of a section which compares the Base with the Policy Option case, and which compares the current income (Base) forecast with that used in Technical Report 74-5;
- the inclusion of new estimates for inventory bounds for gasoline, distillate fuel, residual fuel, and crude oil.
- the use of data expressed in thousands of barrels per day. (Previous data had been expressed in millions of barrels per month.);
- the inclusion of a section which analyzes period-to-period change for each of the primary petroleum product forecasts.

One difficulty in making such forecasts is that a given set of demands for petroleum products can be satisfied by a number of alternative supply allocations of product. Within a region, a given demand may be satisfied by intraregional production, drawdown of intraregional inventories, transfer of product from other regions, or by imports of product. The exact manner in which these sources are utilized in combination is related to market influences. As a result, it was sensible to construct the supply and demand forecasts around a number of appealing goals which would represent the sense of market determined allocations, and would, wherever feasible, attempt to predict

market behavior. The manner in which the forecast satisfies a set of product demands is a feasible solution reflecting the objectives imposed upon the forecasting procedure. The objectives served by the forecasting model are intended to replicate those of the competitive markets for the petroleum products; however, the underlying model itself is not descriptive of these markets. As a result, the solution, although feasible, may deviate from actual market determined allocation in the current, surplus environment when many alternative allocations are possible.

The forecast supply allocation which satisfies a set of demands is determined so that refinery utilization is maximized, shortfalls are minimized, and a number of constraints are met. These constraints are:

- an upper bound on the level of refinery operations;
- an adherence to historical patterns of refinery yields, interregional shipments, and blending ratios and transfers;
- upper and lower bounds on inventory levels that reflect storage and market considerations;
- upper bounds on levels of product and crude imports.

Consistent with these constraints, supply allocations were chosen that would maximize domestic refinery utilization and minimize shortfalls for each product, in each region, for each period of time.

If the forecast supply allocation differs somewhat from that which eventually takes place in the market place, the difference will probably be with respect to the choice between domestic production, inventory adjustments, and foreign sources. The feasible supply allocation provided here tends to emphasize the period under consideration and domestic sources. Although the market may to a slight degree do otherwise, large differences are not anticipated.

An important consideration in evaluating the validity of the conclusions offered by the forecast is the sensitivity of those conclusions to the basic assumptions underlying the forecast. The assumptions used to forecast supply are presented in Chapters III and V. The equations used to forecast demand are presented in Chapter VI. Generally the demand for each product is related to the overall level of economic activity, seasonal variations, and other variables of particular relevance to the product in question. The demand estimates available from these forecasting equations require amendment due to a number of important considerations. In particular, an accounting for the effect of higher prices upon demand is not provided for by the equations.* Accordingly, the demand estimates are adjusted to reflect the impact of higher prices.

*The motor gasoline equation is the single exception.

In addition, the impact of natural gas curtailments is not reflected in the equations. Accordingly, the demand equations are adjusted to reflect estimated price effects and to reflect the fuel substitutions that will arise out of continued natural gas curtailments. The resulting adjusted demand estimates are termed the Base case.

An alternative case, Policy Option, was also forecast in an attempt to estimate the impact of several features of President Ford's energy policy. The salient features of the Policy Option case are:

- domestic production is to be increased due to the development of Elk Hills;
- petroleum demand is to be reduced due to switching from oil to coal;
- petroleum demand is to be reduced due to reductions in natural gas curtailments, resulting from natural deregulation and an excise tax on natural gas;
- petroleum demand is to be reduced due to deregulation of crude oil prices, import fees on imported crude and product, and an excise tax on domestically produced crude.

A later section compares the base case with the Policy Option case and explicitly accounts for the impact of these four differences.

Previous reports in this series addressed the question: are domestic oil supplies sufficient to meet forecast demand? The current emphasis is upon the rate of petroleum imports and forecast changes in that rate due to potential policy actions. This report presents a well-documented base case and a comparison of that base with a program which will reduce oil imports.

The remainder of the report is organized as follows: Chapter II presents a comparison of previous forecasts and the facts. Chapter III presents an overview of the forecasting methodology. Chapter IV presents a comparison of the Base case with the Policy Option case and how the current base case differs from a previous Base case because of changes in the macroeconomic forecasts used. Chapter V reviews the supply assumptions, and Chapter VI presents the supply and demand balances for the Base case. The Policy Option case is presented in detail in the appendix.

OVERVIEW OF THE FORECASTING PROCEDURE

The procedure by which FEA's short-term petroleum forecasts are generated may be summarized as follows:

- (1) First, a number of macroeconomic variables (such as disposable income or industrial productivity) which can be strongly related to the demand for petroleum products are estimated via an econometric model of the U.S. economy.
- (2) Next, these macroeconomic variables are utilized (along with other variables) in a series of regression equations, one for each product, which estimate the demand for that product.
- (3) These regression forecasts are then adjusted for price or other fuel curtailments, where appropriate.
- (4) These adjusted demand forecasts are entered into a supply model which considers stocks, production capacities, inventory rules, imports, interregional shipments, regional distribution, yield patterns, and blending ratios. The model then selects that feasible supply such that shortages are minimized subject to maintaining a high level of domestic production.

A. Econometric Demand Model

FEA's short-term petroleum demand model is driven by a macroeconomic model developed by Data Resources, Inc., (DRI).

The DRI macroeconomic model is a large-scale structural model embodying GNP and industry models. Applied to a data base constructed primarily from the Federal statistical system, the DRI macroeconomic model is used to forecast the following variables, which are subsequently treated as inputs to the FEA petroleum model:

- (1) disposable personal income (1958 dollars, seasonally-adjusted at annual rates);
- (2) personal consumption expenditures (1958 dollars, seasonally-adjusted at annual rates);
- (3) gross national product (1958 dollars, seasonally-adjusted at annual rates);
- (4) Federal Reserve Board index of production for chemicals and chemical products (base: 1967 = 1.0, seasonally-adjusted);
- (5) Federal Reserve Board index of production for electric utilities (base: 1967 = 1.0; seasonally-adjusted).

FEA's petroleum demand model is comprised of a set of regression equations. Using historical data, a regression equation was constructed for each petroleum product. Each equation attempts to capture the relationship between final demand for that product and the relevant factors influencing that demand. The explanatory factors used in predicting product demand included: (a) macroeconomic variables, such as those listed above, (b) variables representing the effects of weather and monthly (seasonal) variations in demand, and (c) other factors relevant to a particular product. A detailed statement of the demand forecasting methodology is presented in Chapter 6 for each product.

B. Current Demand Forecast

The procedure by which the short-term petroleum demand equations are generated may be summarized as follows.

1. Macroeconomic variables which are strongly related to the demand for petroleum products are estimated via DRI's PESSIM December 28 simulation of the U.S. economy. This simulation calls for a 1975 real GNP growth of -3.5 percent.

2. Next, these variables are utilized in eight regression equations, which estimate demand. Each of the major product equations has the economic and appropriate production indices plus seasonal, or weather variables.

3. Adjustments which approximate price effects are applied to this basic demand forecast. The price elasticity and price change assumptions are shown in the following two tables.

Table 7
Price Assumptions

Product	Price Adjustments*
Motor gasoline	-responsiveness to relative price included in regression equation with an average price elasticity of $-.15$ over 1975 with price at the observed value for October of 1974.
Distillate	-observed October price** used.
Residual	-no price effects through November 1974 due to opposing price and natural gas curtailment effects; from December 1974 to end of simulation, an observed October price* was used.
Kero jet	-observed January 1975 price*** used.
Naphtha jet	-observed January 1975 price** was used.
Petrochemical feedstocks	-observed January 1975 price** was used.
Liquefied gases	-observed January 1975 price** was used.
Other products	-observed January 1975 price** was used.

* For all products except motor gasoline, the price adjustments are made with respect to the elasticities given in Table 8.

** A wholesale price index, rather than an actual price, was used in this construct.

*** An all-products, wholesale petroleum price index, rather than an actual price, was used in this construct.

Table 8
Price Elasticities*

Product	Price Elasticity		
	3 mo.	6 mo.	9 mo.
Motor Gasoline***			
Distillate	-.09	-.12	-.12
Residual	-.15	-.08	-.21
Kerosine Jet	-.06	-.07	-.08
Naphtha Jet	-.06	-.07	-.08
Liquefied Gases	-.04	-.04	-.05
Petrochemicals	-.12	-.14	-.16
All Other Products	-.05	-.05	-.05

* The percentage change in the quantity demanded given a 1 percent change in price which is sustained for 3, 6, and 9 months, respectively.

** Price effects are incorporated in the forecasting equation.

4. In addition to the econometric estimates, there is an expectation of increased demand for distillate and residual fuel oils as a result of natural gas curtailments. Estimates of these effects are speculative, but they are unlikely to exceed 150,000 barrels per day. Data describing the potential for fuel switching, particularly in the industrial sector, are incomplete. In addition there is a high degree of uncertainty associated with the degree of shortage, if any, at issue. Nevertheless estimates of increased fuel demand due to switching from natural gas were attempted, in the following fashion:

8 percent natural gas curtailments were assumed, a switching potential of 52 MBD for distillate and 93 MBD for residual was estimated; the allocation of this extra demand over periods was pro rata except for a seasonal adjustment for that portion attributable to electric utilities following historical usage patterns.

Table 9

Increments to Distillate and Residual Demand Due to Switching from Natural Gas (MBD)

Period	Distillate	Residual
74:Oct.	94	53
74:Nov.	94	53
74:Dec.	94	53
75:1Q	89	50
75:2Q	93	50
75:3Q	96	53
75:4Q	94	53

These increments to the demand for residual and distillate fuel oils were based on FEA's assessment of the substitution possibilities of these fuel oils for natural gas in the electric power generation sector and the industrial sector.

For gas curtailments of 8 percent of 1973's electric generation and industrial demand, it was estimated that the following substitution possibilities would materialize:

Increased Demand Due to Gas Curtailments
(thousand barrels/day)

	Distillate	Residual
Electric Power Sector	75	40
Industrial Sector	18	12
Total	93	52

These numbers were then seasonalized to reflect the seasonal pattern of the electric power sector's contribution to the total.

C. Demand Forecasts and Backcasts *

The following tables and graphs summarize FEA's forecasts of total petroleum demand. The tables present FEA's forecast, Independent Petroleum Association of America's forecast, Data Resources Inc.'s (October 1974) forecast, and comparisons of FEA's and IPAA's backcasts with actual total demand levels. The graphs display these figures.

FEA's forecast indicates a first quarter, 1975 increase in total demand of 4.4 percent over the first quarter of 1974; a 0.4 percent decrease in the second quarter of 1975 over the second quarter of 1974; a 2.8 percent decrease in the third quarter of 1975 over the third quarter of 1974; and a 0.1 percent increase in the fourth quarter of 1975 over the fourth quarter of 1974.

* "Backcast" values are determined by inserting observed values for the independent variables in the demand forecasting equations.

Table 10
Backcast Comparison;
Total Petroleum Demand

Year Month	FEA Constrained Demand	IPAA	Actual *
74:1	18726.2	NA	17269.9
74:2	18588.3	NA	17370.5
74:3	17461.3	NA	16044.6
74:4	16274.5	NA	15918.9
74:5	16056.2	NA	15720.1
74:6	16120.0	NA	16175.4
74:7	16039.8	16845.0	16301.2
74:8	16321.5	16845.0	16545.8
74:9	16255.2	16845.0	15993.4
74:10	17148.0	18496.0	17025.0
74:11	17449.4	18496.0	17812.0
74:12	18228.2	18496.0	17844.0

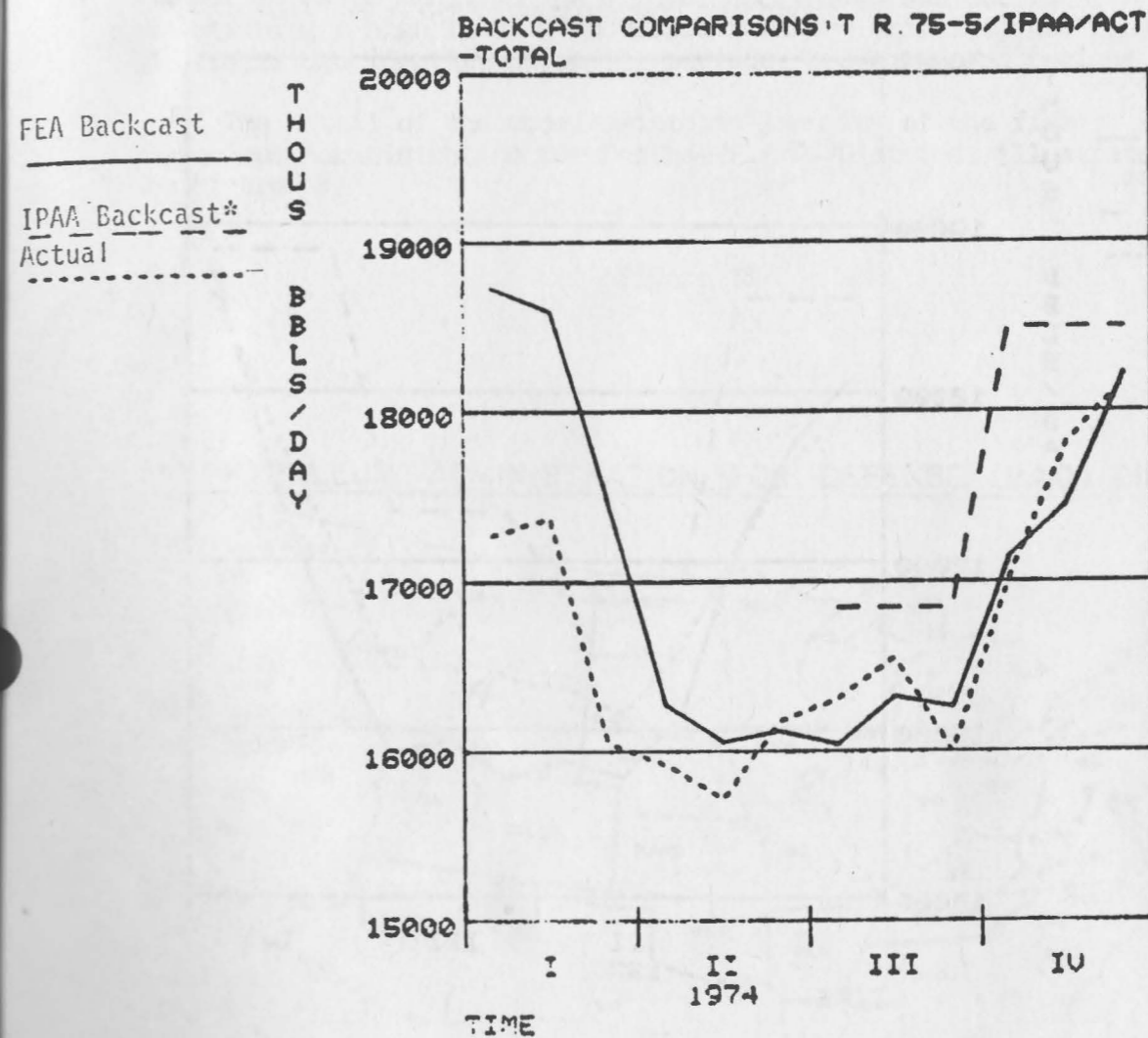
Table 11
Forecast Comparisons;
Total Petroleum Demand

Year Month	FEA Constrained Demand	IPAA	DRI
75:1	18102.4	18567.0	17923.5
75:2	17709.3	18567.0	17621.2
75:3	17091.8	18567.0	17083.7
75:4	16086.8	16771.0	16478.2
75:5	15713.8	16771.0	16083.4
75:6	15803.6	16771.0	16249.2
75:7	15696.2	15696.7	16288.7
75:8	15937.7	15937.8	16678.9
75:9	15852.7	15852.7	16329.7
75:10	16558.1	18855.0	17098.9
75:11	17459.0	18855.0	17780.4
75:12	18722.7	18855.0	18586.8

* Actual values derived from two data sources:

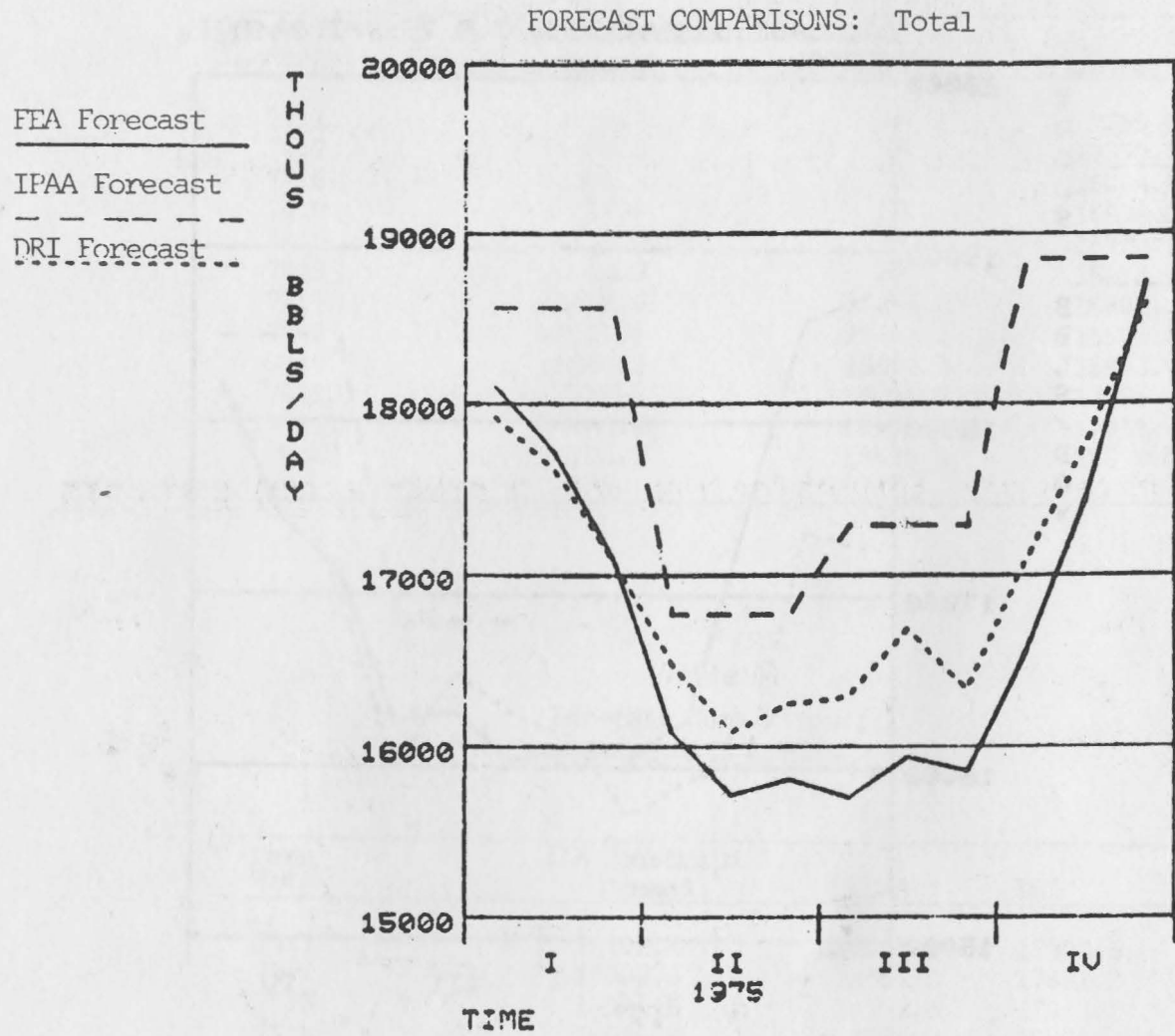
- (a) 74:1 to 74:10, from Bureau of Mines.
- (b) 74:11 to 74:12, from FEA Weekly Statistical Bulletin.

FIGURE 1



* The IPAA figures were prepared prior to an appreciation of the decline in economic activity in the third and fourth quarters 1974.

FIGURE 2

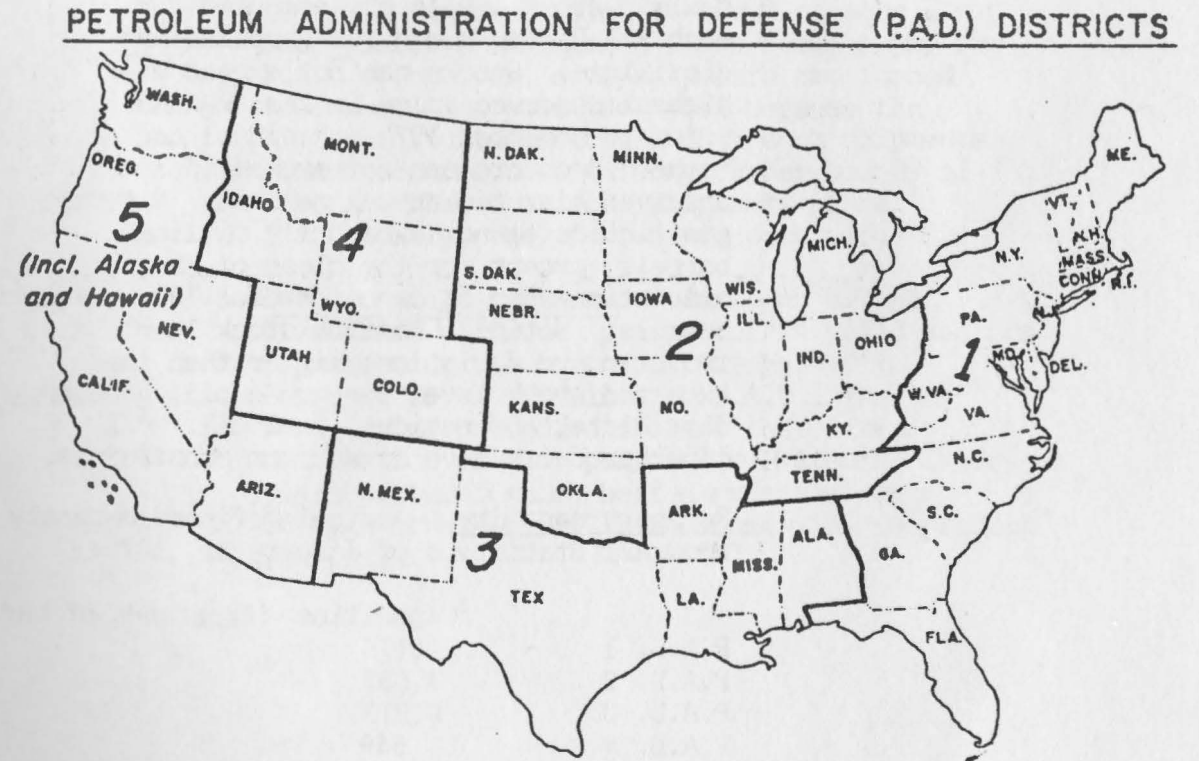


D. Supply Model

Given demand estimates from the econometric model, the supply model selects a supply allocation which satisfies demand subject to constraints. This supply/demand balance is calculated in a manner so as to minimize the product shortages, subject to maintaining a high level of domestic refinery utilization. These shortages are identified for all periods, products, and regions.

The detail of the model maintains identity of the five Petroleum Administration for Defense (P.A.D.) Districts illustrated in Figure 3.

Figure 3



The supply model recognizes numerous constraints, the most important of which pertain to the following:

- (1) Stock levels -- minimum levels are established for each P.A.D., month, and product. The national minimum levels are two standard deviations lower than the expected stock levels for crude oil, gasoline, distillate, and residual fuel oil. The expected stock level is estimated based on forecast demand and seasonal variation. For all other products, the national minimum levels are monthly averages over 1972-73.

Natural gas liquids are constrained to a lower level of 50 million barrels, except for the close of the simulation, when they can not fall below 80 million barrels.

Maximum stock levels are computed for each P.A.D. and month for gasoline and distillate. Stocks can not exceed the highest observed value in the 5 years prior to November 1974. Residual and "other" products can not exceed their observed historic annual maximum. Natural gas liquids cannot exceed 110 million barrels, except for the close of the simulation when it cannot exceed 100 million barrels. National maximum stock levels are two standard deviations higher than the expected stock level for crude oil, gasoline, distillate, and residual fuel oil. All other products have no maximum constraints.

- (2) Refinery capacity -- actual refinery capacity are from API Statistics of January 31, 1975:

	Capacities (Thousands of barrels/day)
P.A.D. 1	1,175
P.A.D. 2	4,059
P.A.D. 3	6,213
P.A.D. 4	549
P.A.D. 5	2,376

Currently, the model may select P.A.D. utilization at a maximum of 93 percent of the actual capacities. The percentage utilizations for each P.A.D. are forced to be within 1 percent of each other in each time period, assuring close utilization rates between P.A.D.'s. Additionally, P.A.D. 3 utilization rates are constrained to be at most 2 percent different from one time period to another.

- (3) Interregional Shipments -- those shipments have two sets of constraints placed on them. The amount of individual product transferred between any two P.A.D.'s is constrained, and the sum of all products transferred between any two P.A.D.'s is also constrained. The constraints follow historical patterns calculated from Bureau of Mines data from October 1971 to September 1973. These constraints generally impose a minimum bound of zero and some positive maximum on flows between any two P.A.D.'s; however, some shipments are forced to run at some positive level because the historical data indicates that such shipments always occurred. Similarly, upper bounds of zero are placed on some shipments since, historically, they have never occurred.
- (4) Product yield patterns -- for each of the five P.A.D.'s, there is a set of 24 yield sectors representing the months of March 1972 to February 1974. Within each P.A.D., the forecasting procedure chooses that linear combination of that particular P.A.D.'s historical yield patterns which best serves the goals of high level of utilization and minimum product shortfall.

- (5) Blending ratios* and transfers -- blending ratios for unfinished oils and natural gas liquids have been calculated for each P.A.D., using Bureau of Mines data from 1972 and 1973. Unfinished oils from one time period are added to crude oil supplies for the next period. Blending ratios used for natural gas liquids are as follows:

P.A.D. I	Gasoline	.2806
	Other**	.1916
	Liquefied Gases	.5278
P.A.D. II	Gasoline	.6358
	Other	.1097
	Liquefied Gases	.2545
P.A.D. III	Gasoline	.3859
	Other	.1829
	Liquefied Gases	.4293
	Distillate	.0019
P.A.D. IV	Gasoline	.6780
	Liquefied Gases	.3220
P.A.D. IV	Gasoline	1.0870
	Liquefied Gases	-.0870

- (6) Disaggregation rules for demand -- for each month and each product, the demand in each P.A.D. is expressed as a percentage of the national demand. These percentages were computed as the 2-year average of the observed percentage demands, covering the months September 1971 to August 1973, the two-year period previous to the embargo.
- (7) Bounds on imports -- import levels for crude oil for each P.A.D. for each quarter may not exceed by more than 10 percent, the maximum rate observed between the first quarter 1968 and the second quarter 1974. For all other oils a rate that is 25 percent above the observed maximum in the mentioned period is the upper bound.

* These ratios represent a transfer from liquefied gases into the natural gas liquids.

** Blending into other products actually represents blending into ethane.

E. Current Supply Forecast

The supply estimates that the current forecasts used are taken from a number of different sources:

- (1) Beginning stock levels -- these numbers are taken from the January 31, 1975, API Weekly Statistical Bulletin.
- (2) Production estimates (crude and NGL) -- this information is taken from quarterly estimates made by the Independent Petroleum Association of America (IPAA). These estimates were made for the fourth quarter, 1974, through the fourth quarter, 1975.
- (3) A documentation of the current supply forecast is provided in Chapter III.

F. Criterion Function for Supply Allocation

Subject to the constraints enumerated in the Supply Model Section (3) of Chapter II the particular choice of production, inventory drawdown interregional transfers, and/or imported product is governed by the goal of minimizing a criterion function defined upon refinery utilization, the other sources of supply, and product shortfall. "Costs" are associated with each of the appropriate variables which lead to a set of priorities imposed upon the forecasting model's selection of supply.

The procedure is as follows:

- (1) A preemptively high "cost" is associated with "slack" capacity, the difference between actual refinery utilization and the highest level allowed by the constraints;* the supply choices of the model will minimize slack capacity before any other goal is considered.

* The notion of "cost" is an artificial concept introduced to guide the model in making supply choices consistent with the stated objectives.

- (2) A smaller cost (which is otherwise preemptive) is assumed for interproduct, interregional, intertemporal percentage shortfall; subject to otherwise minimizing slack capacity, percentage shortfalls are minimized.
- (3) An echelon of approximately declining costs is associated with the alternative sources of supply; generally, this cost structure dictates that a demand be satisfied, first, from regional production, second, from regional inventories, third, from interregional transfers, and last, from imports of product.

The cost variables being minimized are the sum of the squares of the appropriate variables in percentage terms. This process results in the constrained minimization (and equalization) of "shortfall" over the dimensions of time, product, and region.

G. Shortfalls

For purposes of this report, a "shortfall" refers to a situation where forecasted demand cannot be satisfied by forecasted supply of one of the following factors:

- (1) Imports cannot exceed a specified historical level; or,
- (2) Inventories cannot be drawn-down below or built-up beyond specified levels; or,
- (3) Demand cannot be reduced by market factors.*

Real shortages may not appear due to a relaxation of one of these three constraints. The smaller the forecasted shortfall, the more likely it is that such relaxations will occur. Generally, it has been assumed that the import bounds will in fact not be a constraint.

* Yield patterns, changes in yield patterns, and feasible interregional transfers are also constrained. "Shortfalls" may in some measure be due to these constraints as well.

Chapter III FORECASTING SUPPLY

The determination of supply includes estimates of domestic crude and natural gas liquids (NGL) production, blending ratios of NGL, changes in the inventory level of unfinished oils, and imports of crude and finished products.

A. Beginning Inventories - Both Simulations

For most of the petroleum products, actual beginning inventories are used in February. For crude, unfinished oils, motor gasoline, distillate fuel, residual fuel, kerosene and naphtha jet fuels, these inventory numbers are taken from the API weekly report of January 31, 1975. For the remaining petroleum products, estimates were used.

Table 12
API January 31 Beginning
Inventory Levels
(millions of barrels)

Region Product	P.A.D. 1	P.A.D. 2	P.A.D. 3	P.A.D. 4	P.A.D. 5
Motor Gasoline	63.8	74.7	60.5	8.2	28.9
Naphtha Jet	.3	1.6	1.8	.3	1.6
Kerosene Jet	6.4	5.5	6.9	.4	6.2
Distillate	70.2	57.5	40.6	4.0	13.3
Residual	25.2	7.9	9.7	.6	10.9
Unfinished Oils	14.1	19.8	38.6	2.9	25.7
Crude	18.9	79.1	115.4	16.0	38.7



The API inventory figures differ slightly from those supplied by FEA. The following table details these differences for the January 31 inventory figures.

Table 13
Inventory Comparisons
(Millions of Barrels)

Product	API	FEA	Percent Difference*
Domestic and Foreign Crude	268.2	252.7	-6.1
Motor Gasoline	236.1	244.4	+3.3
Naphtha Jet	5.6	5.7	+1.7
Kerosene Jet	25.3	25.5	+7.9
Distillate	185.6	205	+9.5
Residual	54.2	68.5	+20.9

* The API and FEA numbers differ for two reasons:

1. FEA's numbers were based upon data collection within a defined universe. API's numbers were based upon sampling estimation of a slightly smaller universe.
2. FEA's numbers include stocks of independent terminal operators.

B. Forecast of Domestic Crude Oil and NGL Production - Base Case

The forecasts of quarterly domestic and natural gas liquids (NGL) production were made by the Independent Petroleum Association of America (IPAA) on October 29, 1974. The forecasts of monthly domestic crude production were taken from the quarterly forecasts by scaling the values according to the profile of average domestic crude runs to still for 1971 and 1972. These adjustments pertain to February through June 1975.

Table 14
Domestic Crude Production Forecast
(thousands of barrels/day)
IPAA

Time Region	Feb.	March.	April	May	June	1975 Quarters	
						3Q	4Q
P.A.D. 1	104.0	104.8	104.3	105.2	105.2	104.9	104.8
P.A.D. 2	891.4	888.8	882.9	881.2	880.3	871.8	864.0
P.A.D. 3	5,914.2	5,912.5	5,881.9	5,879.3	5,876.8	5,840.2	5,809.8
P.A.D. 4	682.6	684.4	683.7	686.3	687.2	688.0	690.3
P.A.D. 5	1,070.7	1,072.5	1,069.1	1,070.9	1,073.4	1,070.1	1,070.6

Table 15

Domestic NGL Production Forecast
(thousands of barrels/day)
IPAA

Time Region	Feb.	March	April	May	June	1975 Quarters	
						3Q	4Q
P.A.D. 1	22.1	22.1	22.0	22.0	22.0	22.0	21.4
P.A.D. 2	243.7	245.2	231.2	233.6	236.1	230.8	233.6
P.A.D. 3	1,335.9	1,334.6	1,330.1	1,328.4	1,326.1	1,325.8	1,329.5
P.A.D. 4	43.4	43.2	43.1	43.1	43.1	43.0	43.2
P.A.D. 5	30.8	30.8	30.7	29.7	29.7	29.0	28.4

C. Blending of NGL

The blending transactions for NGL were based on the average of similar transactions for 1972 and 1973 for the production of motor gasoline, liquefied gases, distillate, and ethane -- the primary component of "other products."*

Table 16

Blending Proportions

Region \ Product	Motor Gasoline	Liquefied Gases	Other Products	Distillate
P.A.D. 1	.2806	.5278	.1916	0
P.A.D. 2	.6358	.2545	.1097	0
P.A.D. 3	.3859	.4293	.1829	.0019
P.A.D. 4	.6780	.3220	0	0
P.A.D. 5	1.0870	-.0870	0	0

D Stock Levels - Unfinished Oils

The monthly profile of unfinished oil inventory is assumed to follow the average pattern of September 1971 to August 1973.

Table 17

Unfinished Oils Profile
Opening Levels

Region \ Time	Feb.	March	April	May	June	1975 Quarters	
						3Q	4Q
P.A.D. 1	14.1	12.9	15.9	15.7	15.3	15.7	14.8
P.A.D. 2	19.8	18.2	19.8	22.0	22.4	22.4	21.1
P.A.D. 3	38.6	36.3	37.8	39.1	39.8	40.6	38.0
P.A.D. 4	2.9	2.9	2.8	2.7	3.0	3.1	2.7
P.A.D. 5	25.7	23.0	24.1	26.5	26.9	27.2	27.2

* Blending includes blending and transfers.

E. Imports

Imports are treated by the model as an upper level constraint, only when domestic supplies are insufficient to meet demand will crude and/or products be imported. Import constraints were set as 10 percent above the maximum amount of observed imports during first quarter of 1968 to the second quarter of 1974, for crude oil, and 25 percent of all other oils.

Table 18

IMPORT CONSTRAINTS
(thousand of barrels/day)

Product	Region	Quarter (1975)			
		1	2	3	4
Crude	P.A.D. 1	1240	1370	1530	1528
	P.A.D. 2	807	802	805	751
	P.A.D. 3	286	439	548	675
	P.A.D. 4	57	58	56	71
	P.A.D. 5	964	865	1050	932
Unfinished Oils	P.A.D. 1	102.2	111	129	156
	P.A.D. 2	8	7	7	8
	P.A.D. 3	61	57	71	72
	P.A.D. 4	0	0	0	0
	P.A.D. 5	101	80	65	58

Table 18 (continued)

Product	Region	Quarter (1975)			
		1	2	3	4
Natural Gas Liquids	P.A.D. 1	6	6	6	6
	P.A.D. 2	77	77	77	77
	P.A.D. 3	0	0	0	0
	P.A.D. 4	36	36	36	36
	P.A.D. 5	12	12	12	12
Motor Gasoline	P.A.D. 1	190	188	164	219
	P.A.D. 2	4	7	5	4
	P.A.D. 3	21	17	34	21
	P.A.D. 4	4	2	4	4
	P.A.D. 5	8	4	11	11
Naphtha Jet	P.A.D. 1	36	39	67	55
	P.A.D. 2	0	0	0	0
	P.A.D. 3	0	0	0	0
	P.A.D. 4	0	0	0	0
	P.A.D. 5	29	39	17	39

Table 18 (continued)

Product	Region	Quarter (1975)			
		1	2	3	4
Kerosine Jet	P.A.D. 1	110	138	139	136
	P.A.D. 2	10	14	15	12
	P.A.D. 3	26	49	23	26
	P.A.D. 4	0	0	0	0
	P.A.D. 5	129	108	74	136
Distillate	P.A.D. 1	765	267	312	512
	P.A.D. 2	8	14	20	5
	P.A.D. 3	36	44	89	61
	P.A.D. 4	1	0	0	2
	P.A.D. 5	11	10	42	26
Residual	P.A.D. 1	2513	1996	2025	2299
	P.A.D. 2	24	26	36	38
	P.A.D. 3	60	55	55	76
	P.A.D. 4	1	0	0	0
	P.A.D. 5	129	50	139	63

Table 18 (continued)

Product	Region	Quarter (1975)			
		1	2	3	4
Liquefied Gases	P.A.D. 1	60	18	21	43
	P.A.D. 2	105	51	45	81
	P.A.D. 3	67	50	73	51
	P.A.D. 4	40	15	15	30
	P.A.D. 5	48	17	18	55
Other Products	P.A.D. 1	75	52	63	60
	P.A.D. 2	7	1	1	2
	P.A.D. 3	13	8	11	10
	P.A.D. 4	0	2	0	0
	P.A.D. 5	1	4	0	0
Petrochemical Feedstocks	P.A.D. 1	4	2	0	6
	P.A.D. 2	0	0	0	0
	P.A.D. 3	26	36	44	23
	P.A.D. 4	0	0	0	0
	P.A.D. 5	0	0	0	0

F. National Stock Level Bounds

National stock level bounds were forecast for crude oil, motor gasoline, distillate, and residual fuel oil. The bounds were estimated as a function of recent and anticipated demand and the seasons of the year. Stock level bounds were estimated separately for the Base Case and the Policy Option Case. Stocks in this report refer only to primary stocks.

For the three products, the particular product's stock level divided by a twelve month moving average of its demand was regressed on monthly dummy variables and a time trend variable. The forecasted moving average of demand was then multiplied by this variable to provide estimates of anticipated stock levels. Confidence intervals of 99.9% were then derived; these confidence intervals then determine the upper and lower bounds presented below. For crude oil, its stock level was regressed on a moving average of total petroleum product demand, monthly dummy variables, and a time trend variable. The procedure then follows that outlined above.

Table 19

National Stock Level Bounds - Base Case

	1975 Upper Bounds						
	Feb.	March	April	May	June	3Q	4Q
Crude Oil	262.7	263.8	265.3	276.4	273.2	266.8	264.1
Motor Gasoline	245.0	244.0	234.4	226.3	219.8	215.8	236.4
Distillate	143.9	129.7	131.2	142.4	165.6	243.6	214.2
Residual	55.1	52.4	52.8	55.4	57.1	64.9	59.7
	Lower Bounds						
	Feb.	March	April	May	June	3Q	4Q
Crude Oil	241.7	242.8	244.3	255.4	252.2	245.8	243.1
Motor Gasoline	220.0	218.8	209.2	201.0	194.5	190.2	210.5
Distillate	119.7	105.4	107.1	118.2	141.3	219.0	189.4
Residual	44.5	42.1	42.6	45.2	46.8	54.5	49.1

National Stock Level Bounds-Policy Option

	Upper Bounds						
	1975						
	Feb.	March.	April	May	June	3Q	4Q
Crude Oil	248.0	251.3	254.6	267.6	265.8	262.5	261.8
Motor Gasoline	240.8	238.9	228.7	220.0	213.0	207.2	226.6
Distillate	141.6	127.1	127.9	137.9	159.3	229.9	200.5
Residual	54.5	51.4	51.2	53.1	54.0	59.1	53.3

	Lower Bounds						
	Feb.	March	April	May	June	3Q	4Q
Crude Oil	227.0	230.3	233.6	246.6	244.8	241.5	240.8
Motor Gasoline	216.2	214.3	204.1	195.4	188.5	182.7	201.8
Distillate	117.8	103.4	104.3	114.5	136.0	206.7	117.3
Residual	41.9	39.2	39.3	41.3	45.3	47.7	41.9

Chapter IV
COMPARISON OF ALTERNATIVE SCENARIOS

Two supply/demand balance scenarios are presented: a Base Case and a Policy Option Scenario. The two scenarios are specified as follows:

Base Case: The petroleum product demand simulation documented in Chapter VI was utilized. Based upon recent economic indicators, a Data Resources Inc. macroeconomic simulation prepared in December was incorporated in the demand forecast; this simulation projected relatively weak consumer demand over 1975 with a decline in real GNP of 3.5 percent over the year. The relative prices of the products were held constant at their last observed level.

Policy Option Case: This case differs from the Base Case through the incorporation of many of the features of the President's energy policy as given in the State of the Union Message, January 15, 1975.

The price assumptions occasioned by the imposition of import fees and deregulation are given below in the section on prices. In addition it was assumed that:

- (1) Domestic production increases by 160 MBD by the end of 1975 due to the development of Elk Hills;
- (2) Petroleum demand is reduced by 98 MBD due to switching from oil to coal;
- (3) Petroleum demand due to natural gas curtailments ceases after May 1, 1975, due to the deregulation of natural gas at the wellhead;
- (4) Price changes due to the President's policies are held constant in real terms at their May 1975 levels.

This chapter describes these two scenarios.

A. Base Case Scenario

The choice of a Base Case scenario focuses on (1) the choice of a forecast for macroeconomic and industrial activity and (2) the relative price levels to be assumed in making the forecasts of product demand. The macroeconomic forecast assumed for the forecasts prepared for Technical Report 74-5 was prepared in September, 1974, while that assumed for the forecast presented here was prepared in December, 1974*.

* The macroeconomic forecasts were prepared by Data Resources, Inc. The forecast used for Technical Report 74-5 was "Composite Negatives 12/25"; the forecast used for this report is "PESSIM 12/28".

The revised macroeconomic forecast used for this report generally reflects a deeper and longer economic slowdown as compared to the September forecast. Currently, a 3.5 percent decline in real GNP is assumed for 1975 compared to the 1 percent decline forecast in September. The following table presents the new and the old forecast for real disposable personal income for 1975.

Table 21

Disposable Income, 1958 Dollars
(annual rate)

Forecast	Period	1975			
		1Q	2Q	3Q	4Q
September		\$ 599.	\$ 599.	\$ 596.	\$ 616.
December		586.	591.	608.	604.
Percent Difference		-2.1	-1.5	-2.1	-2.0

The current macroeconomic forecast which envisions a lower rate of economic activity in 1975 has led to a downward revision in the expected demand for primary petroleum products.

The relative price of products is another important factor in the estimation of expected demand. The Base Case scenario assumes that the relative price of each product remains fixed at its last observed value over the forecast interval (i.e., that nominal product prices exactly follow the general movement of all prices). Compared to the relative prices assumed for Technical Report 74-5, the relative prices measured in December have declined slightly. Table 22 documents the small differences.

Table 22

Relative Prices *

Forecast	Fuel	MOGAS	Distillate	Residual	All Other
September		.231	1.66	2.21	1.51
December		.228	1.62	2.14	1.44
Percent Difference		-1.3	-2.4	-3.2	-4.6

* See the sections for each fuel in Chapter VI for a definition of the relative price index used for the fuel.

However, the impact of a decline in the rate of economic activity more than offsets the softening in product prices. As a result, the Base Case forecast presented here projects lower demand for petroleum products than the Base Case forecast prepared in Technical Report 74-5.* Table 23 presents the differences in aggregate demand between the two Base Case forecasts.

Table 23

Base Case Aggregate Petroleum Demand
(MBD)

Forecast	Period	1975			
		1Q	2Q	3Q	4Q
September		18,661	16,639	16,642	18,457
December		17,635	15,869	15,829	17,580
Percent Difference		-5.5	-4.6	-4.9	-4.8

B. Policy Option Case

An alternative case, Policy Option, was also forecast. The Policy Option case is identical to the Base Case except for the following four changes:

- (1) Domestic production is increased by 26, 80, 120, 160 thousand barrels per day in the 1,2,3,4 quarter of 1975 to reflect Elk Hills production;
- (2) Residual demand is reduced by 25, 49, 74, 98 thousand barrels per day in the 1,2,3,4 quarter of 1975 to reflect switching from oil to coal;
- (3) Residual and distillate demand is reduced by 0, 96, 150, 147 thousand barrels per day in the 1,2,3,4 quarter of 1975 to reflect suspension of natural gas curtailments;
- (4) Petroleum demand is reduced as a result of the imposition of import fees and deregulation of crude oil.

* An exception is motor gasoline.



C. Price Assumptions

The petroleum product demand simulation applies price elasticity assumptions to deflated wholesale price indices for all products except motor gasoline. For motor gasoline price effects are measured in terms of the deflated, excluding tax, retail price per gallon. For all products except motor gasoline, the price effects are lagged with respect to how long a price change is assumed to be sustained. This lag structure (assuming constant elasticities) is given for a one, two, and three quarter duration. The assumed elasticities are the same as in the Base Case.

For motor gasoline the relationship between market price and demand was included as part of the regression equation. The specification of the forecasting equation is such that the price elasticity of motor gasoline varies somewhat depending upon the mean values for price and quantity over the given interval at which the price elasticity is measured. Generally, for the year 1975, the price elasticity of motor gasoline is -0.15.

Using the results of analyses conducted by the FEA Office of Economic Impact, the implications of the President's policy of import fees and deregulation were traced for nominal prices measured by month for January through May 1975. These nominal prices were then converted into the appropriate indexed and deflated format for incorporation into the petroleum product demand simulation. The derivation of the nominal price time series is as follows:

Construction of May 1, 1975 Petroleum Prices

The end of year 1974 crude oil price was derived as follows:

$$\begin{aligned} \$8.4425 &= .75 (0.6 \times \text{old oil price} + 0.4 \times \text{new oil price}) \\ &+ .25 \times \text{imported oil price} \end{aligned}$$

where

- .75 = proportion of crude and NGL domestically produced
- .25 = proportion of crude and NGL imported
- 0.6 = current proportion of domestic supply that is old oil
- 0.4 = current proportion of domestic supply that is new oil

old oil price - \$5.25 per barrel
new oil price - \$11.00 per barrel
imported oil price = \$11.00 per barrel*

*Although higher imported oil prices are quoted, \$11 is the estimate of the average economic cost of imports to refiners. See Appendix B.

The May 1, 1975, crude price was obtained by equating the old price to the new oil price, and the imported oil price to \$13 to account for decontrol, the domestic excise tax, and the import fee. It was assumed that the price of NGL would be equivalent to the price of crude oil, even if a smaller Btu equivalent tax were to be placed on NGL. After May 1, 1975, all petroleum prices were assumed to rise nominally by the rate of inflation, that is, not to change in real terms.

The refined product average was constructed using the crude oil series plus estimates of refining costs and other cost factors. The distillate and residual price series were constructed from the crude series with the rule that increases in the domestically produced distillate and residual would equal increases in average crude prices. Imported residual and distillate were assumed to increase in price by an amount equal to the import fee. The average price indices were constructed for the products weighted by their domestic to imported ratios. Since nearly all gasoline is domestically produced, its price increases only reflect crude increases.

These rules produce straight passthrough of costs to products without shifting costs from one product to another. As an alternative to this simple, pro-rata cost passthrough - price construction, historical price relationships were also examined. Historical ratios of the various product prices to the refined products average were used to forecast prices. The results of forecasting prices on the basis of historical ratios were little different from that given by the simple passthrough assumptions. Since it is expected that regulations will be enforced to equalize product price increases, the equalized cost passthrough with an immediate adjustment was used to forecast prices. The nominal price forecast assumed is given in Table 24.

First 4 Months of 1975

For the transition period February 1 to April 30, 1975, the following prices were used.

The per barrel increases in crude prices in February, March, and April reflect the \$1, \$2, and \$3 import fee on imported crude. Domestically produced crude is still averaged under the old-new oil scheme. The product average, residual, distillate, and gasoline prices during this period reflect the change in crude prices due to the \$1, \$2, and \$3 crude import fee and the \$0, \$.60, and \$1.20 fee on imported products,* as well as the ratio of domestically produced to imported products.

* See The White House, Fact Sheet, January 15, 1975, The President's State of the Union Message, p. 33, items (A) 1(a) and (A) 1(c). The system of rebates on products nullifies the February fee on products.

These ratios are assumed to be:

Petroleum Product Average	
Domestically Produced	.82
Imported as Product	.18
Residual	
Domestically Produced	.35
Imported as Product	.65
Distillate	
Domestically Produced	.85
Imported as Product	.15

Gasoline - All Domestically Produced.

Product prices are calculated as follows:

Petroleum Product Average = \$10.15* +
 Wholesale Price .82 (Average Change in Crude
 Oil Price) +
 .18 (Change in Product Import
 Fee)

Residual Wholesale Price = \$ 7.75* +
 .35 (Average Change in Crude
 Oil Price) +
 .65 (Change in Product Import
 Fee)

Distillate Wholesale Price = \$11.98* +
 .85 (Average Change in Crude
 Oil Price) +
 .15 (Change in Product Import
 Fee)

Gasoline Retail Price = \$ 0.41* + Average Change in Crude
 Oil Price per gallon

* Latest observed price per barrel - except gasoline
 (per gallon).

Table 24 Price Assumptions

	1975				
	Jan.	Feb.	March	April	May
Crude*	\$ 8.44	\$8.99	\$9.54	\$10.09	\$13.00
All Products*	10.15	10.60	11.16	11.72	14.25
Distillate*	11.98	12.44	13.00	13.56	16.15
Residual*	7.75	7.94	8.52	9.10	10.64***
Gasoline**	0.41	0.423	0.436	0.449	0.519

D. Determination of Aggregate Inventory Profile

The inventory profile given in the Executive Summary is an amendment of the inventory profile actually determined by the supply and demand simulation documented in Chapter VI on a fuel by fuel basis. The profile actually determined is (by quarter):

	1975 (Quarters)				YEAR
	1Q	2Q	3Q	4Q	
Stock Change	-908****	+602	+885	-458	+34

This profile assumes a stock change for February of -2328 MBD. A reduction in stocks of this magnitude arises in the simulation as

* Wholesale prices per barrel

** Retail price per gallon excluding taxes. The national average for gasoline taxes is 12-14 cents.

*** The construction of this series failed to pick up the recent increases in residual prices. An \$11.43 November price would generate a \$11.43 - \$11.62 - \$12.20 - \$12.78 - \$14.32 series, which would cause the wholesale price index used here for 1975 to be 10 percent lower due to a smaller percentage change. This change (which reduces residual demand by approximately 40,000 barrels per day) will be incorporated in a technical memo.

**** Determined using the FEA estimate of actual January 1975, stock changes as -501.

a result of the initial, high stock levels (compared to historical norms) and the requirement that the simulation generally observe historically based stock constraints (i.e., in the first period (February) the simulation draws down precipitously in order to adjust stock levels to satisfy the historically-based stock level constraints in the second period (March)). While such an inventory policy is possible, so large a draw-down appeared unlikely, especially in light of the maintenance of high stock levels through the fourth quarter of 1974 into 1975. In any event preliminary measurements through February 21, 1975, indicated an estimated actual stock change in February of approximately -1,000MBD. Accepting this estimate for the month of February as a whole, but keeping the simulated stock change for March at -32 gives an amended first quarter stock change estimate of -495 MBD.

Observed aggregate stock levels on December 1, 1974, were considered to be very high, both seasonally and in relation to the (only roughly) understood capacity restraint on aggregate stocks. As a result, it was decided for forecasting purposes to limit stock build up in the aggregate to not exceed the level measured at the beginning of December. Since stock changes in December were estimated at approximately -770 MBD, this restriction determined that forecast stock build-up in the second and third quarter 1975, be set at rates which would just compensate for the stock draw down given for December 1974, and first quarter 1975. Finally, in order that the import forecast for the year as a whole would be unaffected by the particular stock profile assumed, the fourth quarter aggregate stock draw-down was set at that rate such that there would be no net stock change over the year. Keeping the ratio of second quarter to third quarter stock build-up the same as that originally simulated, the amended inventory profile follows:

Amended Inventory Profile (MBD)

	1975				YEAR
	1Q	2Q	3Q	4Q	
Stock Change	-495	+303	+445	-259	0

In order that the Base Case and Policy Option Case could be compared entirely in terms of the changes in current supply and demand, the amended inventory profile was also imposed upon the Policy Option supply and demand scenario.

COMPARISON OF PREVIOUS FORECASTS WITH OBSERVED SUPPLY AND DEMAND

This section will review previous forecasts made in this series of National Petroleum Product Supply and Demand reports. For each time period considered, four items are forecast at the national level: demand, domestic supply, stock changes, and import levels. However, once any three of the items have been determined, the fourth item is also determined because of the following identity:

$$\text{Demand} = \text{Domestic Production} + \text{Imports} - \text{Stock Changes.}$$

The procedure in these reports has been to forecast demand, use the most recent estimates of domestic production, decide upon a reasonable stock adjustment rule for the period under consideration, and then compute imports as the "residual" factor. Thus it seems reasonable to compare previous forecasts to the facts by comparing previous demand forecasts, previous domestic production estimates, previous stock adjustment rules, and previous computations of imports with actual values for the fourth quarter 1974.

Such a comparison not only allows for a validation of the soundness and reasonableness of the methodology used in this report, but it also points out the relative strengths and weaknesses of the methodology.

Fourth Quarter 1974, Comparisons

Table 25

Petroleum Product Supply and Demand
Fourth Quarter, 1974 (thousands of barrels per day)

	FEA Actual * Oct.4-Dec.27	Technical Report 74-5 Forecast	Revised March,** 1975 Backcast
Total Petroleum Demand	17,777.3	17,774	17,542
Domestic*** Production	10,766.6	10,833	10,833
Stock Changes	-347.4	-761	-347.4
Imports	6,663.8	6,180	6,361.6

* Source: Petroleum Situation Reports Oct. 4-Dec. 27, 1974.
** Same as T.R. 75-5 Base Case, except includes updated information on a number of the economic and weather variables.
*** Production equals crude + NGL production + refinery gain.

Table 26

Fourth Quarter 1974, Percent Differences from Actual Values

	FEA Actual Oct. 4-Dec. 27	Technical Report 74-5 Forecasts	Revised March 1975 Backcast
Total Petroleum Demand	17,777.8	0%	-1.3%
Domestic Production	10,766.6	0.6%	0.6%
Stock Changes	-347.4	119%	0%
Imports	6,663.8	-7%	-4.5%

Table 27

Fourth Quarter 1974, Absolute Differences from Actual Values (thousand of barrels per day)

	FEA Actual Oct. 4-Dec. 27	Technical Report 74-5 Forecast	Revised March 1974 Backcast
Total Petroleum Demand	17,777.8	3.8	-235.8
Domestic Production	10,766.6	66.4	66.4
Stock Changes	-347.4	413.6	0
Imports	6,663.8	-483.8	-302.2

Previous demand forecasts and previous production estimates were extremely reliable. Forecast demand and production showed only insignificant percentage and absolute differences from actual values.

However, the anticipated end-of-the-year stock drawdown, did not materialize in the quantities expected. Hence the actual import rate exceeded that presented in Technical Report 74-5's Base Case.*

* Note that in T.R. 74-5, p.xiii, it was expected that import rates through the fourth quarter 1974, would follow the High Demand Case, a 6,862,000 barrels per day rate.

Moreover, it must be observed that the revised backcast is 300,000 barrels below actual values, even though this backcast uses recent weather and economic data. Part of the explanation of the differences lies in the abnormal weather and the severity of the economic downturn. The forecast equations are most accurate when confronted with values in a normal range, but they tend to slightly overemphasize abnormally warm weather or historically low economic variables. The revised forecast is still within 2 percent of actual values.

Even though the fourth quarter revised backcast for the fourth quarter 1974 is slightly less precise than the original forecast, the monthly variance from actual values for the revised backcast is significantly smaller than for the original forecast.*

Finally, it has been assumed in this report that there will be no net stock change for the year 1975. If the demand and production estimates retain their accuracy, then 1975 forecasts of import levels will be met, or not, depending on the accuracy of this assumed stock rule.

* Actual Four-Week Averages/Monthly Forecasts (Deviations from Actual Values)

	Nov. 1	Nov. 29	Dec. 27
FEA Reported	17,386	17,812	18,168
Technical Report 74-5	16,729 (-657)	17,801 (-11)	18,793 (+625)
Revised Backcast	17,129 (-257)	17,490 (-322)	18,007 (-161)

(thousands of barrels per day)

Chapter VI

FORECASTING SUPPLY AND DEMAND BALANCE

A. Introduction

This chapter presents the Base Case Forecast and documentation of the Econometric Demand Estimating Procedure. In addition, forecasts made by FEA and the Independent Petroleum Association of America (IPAA) are compared to actual consumption estimates. The actual consumption estimates are derived from two data sources: (1) for the period January to October of 1974, Bureau of Mines (BOM) numbers are used; (2) for the period November 1974 to December 1974, FEA Weekly Statistical Bulletin (FEWSB) numbers are used. The IPAA forecasts extend through the last quarter of 1975.

It should be noted that the demand estimates provided by the Econometric Model differ slightly from those appearing in the forecast. This difference is due to rounding when the national demand figure is disaggregated into P.A.D. demands and then recalculated by summing the individual P.A.D. demands.*

B. Period-To-Period Analysis

This chapter contains for each product a new table which analyzes in detail the factors behind period-to-period changes in product demand. For example, in the case of motor gasoline, forecast demand declines by 439.6 (MBD) thousands of barrels per day in the period December 1974 to January 1975. That decline in demand is attributable to the following factors: (1) a \$5.2 billion decline in real, disposable personal income resulted in a 29.4 MBD decline in demand, (2) a month-to-month change in seasonality resulted in a 421.5 MBD decline, (3) price effects had no impact on demand because the relative price relationship was assumed to remain constant from October 1974 to the end of the forecast interval, and (4) a one month change in the time trend variable resulted in a countervailing (i.e. positive) change of 11.3 MBD, and (5) no adfactor adjustments were made to motor gasoline demand. The "change in other factors" given in the table pertains to the difference between the actual changes and the changes determined by the differential procedure embodied in the period-to-period analysis.

* The demand equations presented here differ from those documented in Technical Report 74-5 in that they have been recalibrated from millions of barrels per month to thousands of barrels per day.

C. Motor Gasoline

1. Definition*

A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, which have been blended to form a fuel suitable for use in spark ignition engines. Includes all refinery products within the gasoline range (ASTM Specification D 439; Federal Specification VV-G-766) that are to be marketed as motor gasoline without further processing, i.e., any refinery operation except mechanical blending. Also includes finished components in the gasoline range which will be used for blending or compounding into finished gasoline.

2. Demand Comparisons - Motor Gasoline

Table 28
Demand Comparison for Motor Gasoline
(thousands of barrels per day)

Year/ Month	Base Case	Policy Option Case	Difference	Percent Difference
75:1	5,984.0	5,977.0	-7.2	-0.1
75:2	6,163.0	6,131.0	-32.0	-0.5
75:3	6,387.0	6,308.0	-78.8	-1.2
75:4	6,542.0	6,417.0	-124.8	-1.9
75:5	6,665.0	6,387.0	-277.7	-4.2
75:6	6,939.0	6,662.0	-277.7	-4.0
75:7	6,990.0	6,712.0	-277.7	-4.0
75:8	6,961.0	6,683.0	-277.7	-4.0
75:9	6,690.0	6,413.0	-277.7	-4.2
75:10	6,632.0	6,355.0	-277.7	-4.2
75:11	6,577.0	6,300.0	-277.7	-4.2
75:12	6,632.0	6,354.0	-277.7	-4.2

*This definition and all subsequent definitions pertain to Bureau of Mines' data.

National Supply and Demand Balance:
Motor Gasoline, Base Case

(BASE)

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	609.5	1,605.5	2,192.1	212.2	787.2	5,406.3
% YIELD	44.3	51.7	45.5	49.2	42.2	46.6
BLEND	69.5	608.0	341.1	9.1	27.3	1,054.9
IMPORTS						
SHIPMENTS	90.3	155.9	1,677.9	45.5		1,969.6
RECEIPTS	1,489.3	310.5	89.1	19.2	61.5	1,969.6
FROM INV.	-59.2	-198.9	-34.2	-21.6	15.9	-298.1
SUPPLY	2,018.8	2,169.1	910.0	173.3	891.8	6,163.0
DEMAND	2,018.8	2,169.1	910.0	173.3	891.8	6,163.0
SHORT						
OPEN MMB	63.8	74.7	60.5	8.2	28.9	236.1
CLOSE MMB	65.5	80.2	61.5	8.8	28.4	244.4

-TO-

PAD 1		55.2	1,434.1		
PAD 2	90.3		210.7	9.5	
PAD 3		89.1			
PAD 4		11.6	7.6		
PAD 5			25.5	36.0	

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	606.3	1,676.9	2,189.9	217.1	805.4	5,495.6
% YIELD	42.4	51.9	44.3	49.1	41.6	45.9
BLEND	43.8	301.5	336.5	7.9	65.8	755.5
IMPORTS						
SHIPMENTS	90.3	155.9	1,740.1	45.5		2,031.8
RECEIPTS	1,551.5	310.5	89.1	19.2	61.5	2,031.8
FROM INV.	176.1		-10.8	-22.9	-6.3	135.9
SUPPLY	2,287.4	2,133.1	864.5	175.7	926.4	6,387.0
DEMAND	2,287.4	2,133.1	864.5	175.7	926.4	6,387.0
SHORT						
OPEN MMB	65.5	80.2	61.5	8.8	28.4	244.4
CLOSE MMB	60.0	80.2	61.8	9.5	28.6	240.2

-TO-

PAD 1		55.2	1,496.3		
PAD 2	90.3		210.7	9.5	
PAD 3		89.1			
PAD 4		11.6	7.6		
PAD 5			25.5	36.0	

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	619.1	1,718.6	2,244.7	222.2	839.8	5,644.4
% YIELD	42.4	52.1	44.3	49.2	42.4	46.1
BLEND	43.8	110.1	475.8			629.6
IMPORTS						
SHIPMENTS	90.3	155.9	1,876.3	45.5		2,168.0
RECEIPTS	1,687.7	310.5	89.1	19.2	61.5	2,168.0
FROM INV.	-55.3	219.8	-.4	2.5	101.4	268.0
SUPPLY	2,205.0	2,203.0	932.9	198.4	1,002.7	6,542.0
DEMAND	2,205.0	2,203.0	932.9	198.4	1,002.7	6,542.0
SHORT						
OPEN MMB	60.0	80.2	61.8	9.5	28.6	240.2
CLOSE MMB	61.7	73.7	61.8	9.4	25.6	232.2

-TO-

PAD 1		55.2	1,632.5		
PAD 2	90.3		210.7	9.5	
PAD 3		89.1			
PAD 4		11.6	7.6		
PAD 5			25.5	36.0	

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	643.5	1,834.8	2,298.4	228.3	867.5	5,872.4
% YIELD	42.4	53.5	44.3	49.2	42.7	46.5
BLEND	43.8	204.6	280.0	21.2	32.2	581.8
IMPORTS						
SHIPMENTS	90.3	148.0	1,838.1	53.1		2,129.5
RECEIPTS	1,649.5	318.1	89.1	11.3	61.5	2,129.5
FROM INV.	52.9		137.1	-5.4	26.3	210.8
SUPPLY	2,299.4	2,209.5	966.5	202.2	987.5	6,665.0
DEMAND	2,299.4	2,209.5	966.5	202.2	987.5	6,665.0
SHORT						
OPEN MMB	61.7	73.7	61.8	9.4	25.6	232.2
CLOSE MMB	60.0	73.7	57.6	9.6	24.8	225.6

-TO-

PAD 1		55.2	1,594.3		
PAD 2	90.3		210.7	17.1	
PAD 3		89.1			
PAD 4		3.7	7.6		
PAD 5			25.5	36.0	

(BASE)

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	658.6	1,935.5	2,353.4	233.7	887.8	6,069.0
% YIELD	42.4	55.1	44.3	49.2	42.7	46.9
BLEND	43.8	206.1	371.8	21.2	32.2	675.1
IMPORTS						
SHIPMENTS	96.6	143.0	1,919.8	55.7		2,215.1
RECEIPTS	1,728.1	327.0	87.2	11.3	61.5	2,215.1
FROM INV.	-37.4	65.2	109.0	21.8	36.3	194.9
	-----	-----	-----	-----	-----	-----
SUPPLY	2,296.4	2,390.8	1,001.6	232.3	1,017.9	6,939.0
DEMAND	2,296.4	2,390.8	1,001.6	232.3	1,017.9	6,939.0
SHORT						
OPEN MMB	60.0	73.7	57.6	9.6	24.8	225.6
CLOSE MMB	61.2	71.7	54.3	8.9	23.7	219.8

-TO-					
PAD 1		52.1	1,676.0		
PAD 2	96.6		210.7	19.7	
PAD 3		87.2			
PAD 4		3.7	7.6		
PAD 5			25.5	36.0	

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	643.5	1,886.6	2,399.2	227.9	911.7	6,068.8
% YIELD	42.4	55.0	46.2	49.1	44.9	48.0
BLEND	27.1	238.1	452.3	21.2	31.5	770.1
IMPORTS						
SHIPMENTS	90.3	133.0	1,940.8	55.7		2,219.8
RECEIPTS	1,731.2	320.7	74.1	11.3	82.5	2,219.8
FROM INV.	29.1	77.4	-80.7	27.1	-9.4	43.5
	-----	-----	-----	-----	-----	-----
SUPPLY	2,340.6	2,389.8	904.0	231.8	1,016.3	6,882.4
DEMAND	2,340.6	2,389.8	904.0	231.8	1,016.3	6,882.4
SHORT						
OPEN MMB	61.2	71.7	54.3	8.9	23.7	219.8
CLOSE MMB	58.5	64.6	61.7	6.4	24.6	215.8

-TO-					
PAD 1		55.2	1,676.0		
PAD 2	90.3		210.7	19.7	
PAD 3		74.1			
PAD 4		3.7	7.6		
PAD 5			46.5	36.0	

(BASE)

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	628.5	1,762.4	2,388.9	220.3	888.6	5,888.7
% YIELD	42.4	52.6	47.2	48.6	44.8	47.8
BLEND	43.6	193.6	432.2	31.2	30.9	731.5
IMPORTS						
SHIPMENTS	116.5	69.7	2,019.3	55.7		2,261.2
RECEIPTS	1,698.5	446.4	43.5	11.3	61.5	2,261.2
FROM INV.	-22.2	-8.9	55.3	-15.7	-14.4	-6.1
	-----	-----	-----	-----	-----	-----
SUPPLY	2,231.8	2,323.8	900.6	191.3	966.6	6,614.1
DEMAND	2,231.8	2,323.8	900.6	191.3	966.6	6,614.1
SHORT						
OPEN MMB	58.5	64.6	61.7	6.4	24.6	215.8
CLOSE MMB	60.5	65.4	56.7	7.9	25.9	216.4

-TO-					
PAD 1			1,676.0		
PAD 2	116.5	22.5	310.2	19.7	
PAD 3		43.5			
PAD 4		3.7	7.6		
PAD 5			25.5	36.0	

3. The Demand Function

The forecast of monthly domestic demand for motor gasoline is based on the following equation:

$$\begin{aligned}
 \text{DMD291GASMTRNS} = & -151.512 + 5.63886 * \text{YD58M} \\
 & (-.167236) \quad (2.13791) \\
 & + 11.2542 * \text{TIME2} \\
 & (1.89305) \\
 & -4271.02 * \text{PMRGASNS}/(\text{CPI} * 1.165) \\
 & (-1.56164) \\
 & 186.220 * \text{SEASONMO2} + 390.977 * \text{SEASONMO3} \\
 & (2.34080) \quad (4.90032) \\
 & +516.217 * \text{SEASONMO4} + 619.528 * \text{SEASONMO5} \\
 & (6.48176) \quad (7.75354) \\
 & +873.207 * \text{SEASONMO6} + 906.379 * \text{SEASONMO7} \\
 & (10.8507) \quad (10.7163) \\
 & +856.534 * \text{SEASONMO8} + 559.494 * \text{SEASONMO9} \\
 & (10.0698) \quad (6.55759) \\
 & +471.567 * \text{SEASONM10} + 389.752 * \text{SEASONM11} \\
 & (5.54725) \quad (4.49515) \\
 & +421.447 * \text{SEASONM12} \\
 & (4.94323)
 \end{aligned}$$

$$\bar{R}^2 = 0.9343, \text{ DW} = 2.5783, \text{ SE} = 125.678$$

where:

- DMD291GASMTRNS \equiv domestic monthly total demand for motor gasoline, thousands of barrels per day, not seasonally-adjusted;
- YD58M \equiv disposable personal income, billions of 1958 dollars;
- TIME2 \equiv time trend, 47:1 = 1.0, increments of 1 for each month thereafter;
- PMRGASNS \equiv retail motor gasoline price, excluding taxes, dollars per gallon (actual values were used through October 1974; an assumed price at that level is used thereafter in the forecast);

CPI/1.165

\equiv consumer price index, 1967 = 1.0, converted to 1958 = 1.0 (actual values were used through October 1974; the October 1974 value was assumed thereafter in the forecast)

SEASONMO2 through SEASONM12

\equiv dummy variables representing February through December, respectively.

NOTE: Estimation interval 69:1 to 73:6

To obtain constrained demand, the following equation is used:

$$\text{CONSTRAINED DEMAND} = \text{DMD291GASMTRNS} + \text{EXPMOGAS}$$

where EXPMOGAS = exports of motor gasoline.

Table 29
Motor Gasoline Constrained Demand
(thousands of barrels per day)

Year/ Month	DMD291GAS- MTRNS	Export Motor Gasoline	Constrained Demand
74:1	6021.9	2.0	6023.9
74:2	6155.5	2.0	6157.5
74:3	6330.6	2.0	6332.6
74:4	6405.7	4.0	6409.7
74:5	6473.3	4.0	6477.3
74:6	6744.3	4.0	6748.3
74:7	6800.3	2.0	6802.3
74:8	6792.1	2.0	6794.1
74:9	6558.1	2.0	6560.1
74:10	6480.2	2.0	6482.2
74:11	6397.0	2.0	6399.0
74:12	6421.4	2.0	6423.4
75:1	5981.8	2.0	5983.8
75:2	6160.9	2.0	6162.9
75:3	6385.0	2.0	6387.0
75:4	6538.1	4.0	6542.1
75:5	6660.8	4.0	6664.8
75:6	6935.3	4.0	6939.3
75:7	6987.7	2.0	6989.7
75:8	6958.6	2.0	6960.6
75:9	6688.2	2.0	6690.2
75:10	6630.3	2.0	6632.3
75:11	6575.2	2.0	6577.2
75:12	6629.6	2.0	6631.6

4. Backcast Comparison

Table 30
Demand for Motor Gasoline
(thousands of barrels per day)

Year / Month	FEA	IPAA * **	Actual ***
74:1	6023.9		5804.34
74:2	6157.5		6099.84
74:3	6332.6		6161.92
74:4	6409.7		6456.87
74:5	6477.3		6745.37
74:6	6748.3		6919.16
74:7	6802.3	6901.00	6959.08
74:8	6794.1	6901.00	7061.41
74:9	6560.1	6901.00	6387.54
74:10	6482.2	6699.0	6712.18
74:11	6399.0	6699.0	6721.69
74:12	6423.4	6699.0	6604.21

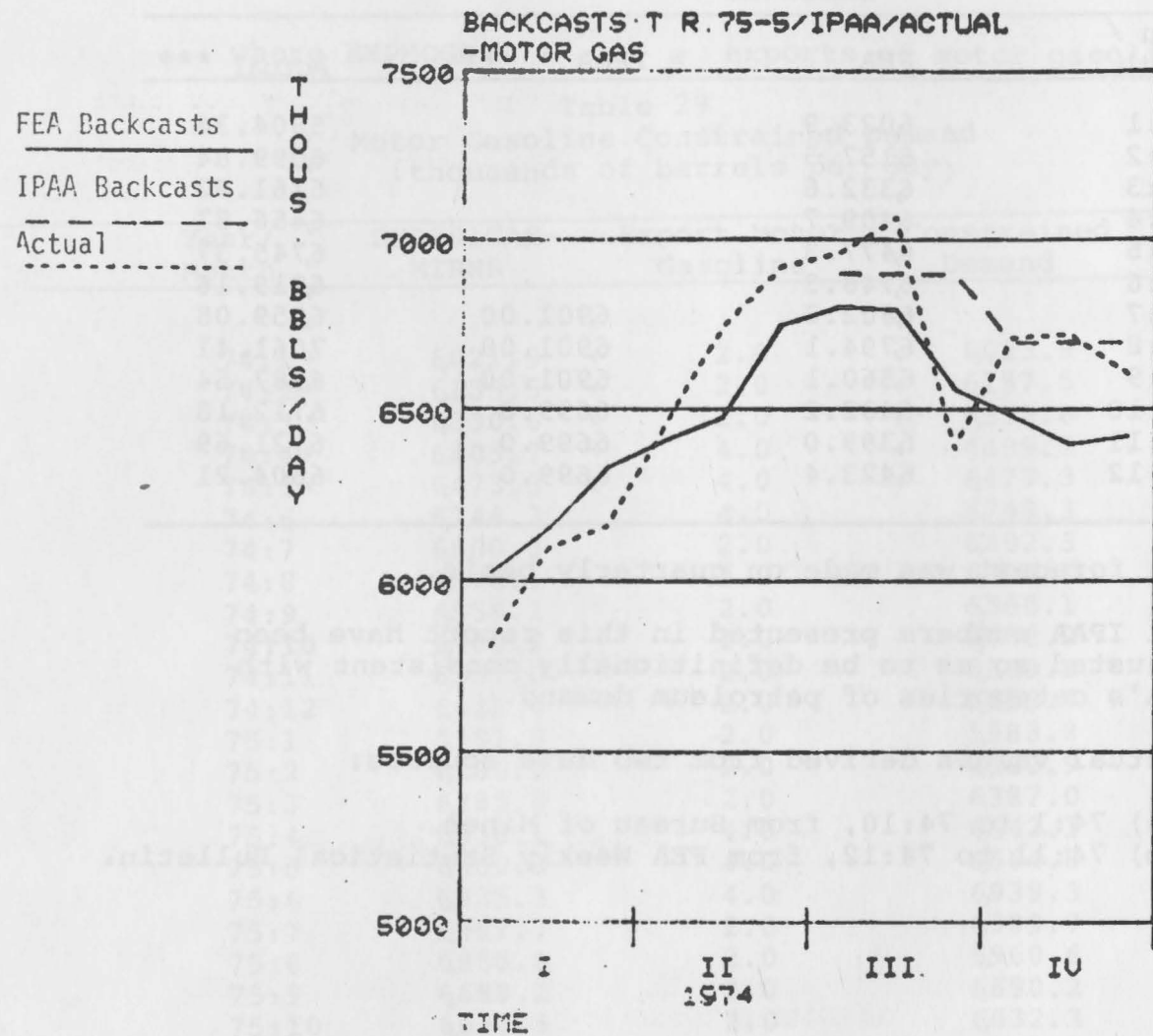
*IPAA forecast was made on quarterly basis.

**All IPAA numbers presented in this report have been adjusted so as to be definitionally consistent with FEA's categories of petroleum demand.

***Actual values derived from two data sources:

- (a) 74:1 to 74:10, from Bureau of Mines.
- (b) 74:11 to 74:12, from FEA Weekly Statistical Bulletin.

FIGURE 4



5. Summary of Demand Forecast

The Federal Energy Administration's demand forecast for motor gasoline was consistently below the estimate made by IPAA. On the average, FEA's estimate for motor gasoline was 204,000 barrels per day less than IPAA's. This difference amounts to 3.1 percent of the FEA estimate.

FEA's forecast tracks quite closely with DRI's forecast. On the average, DRI's forecast is 48,800 barrels per day higher than FEA's; this difference amounts to .7 percent of FEA's forecast demand.

Table 31

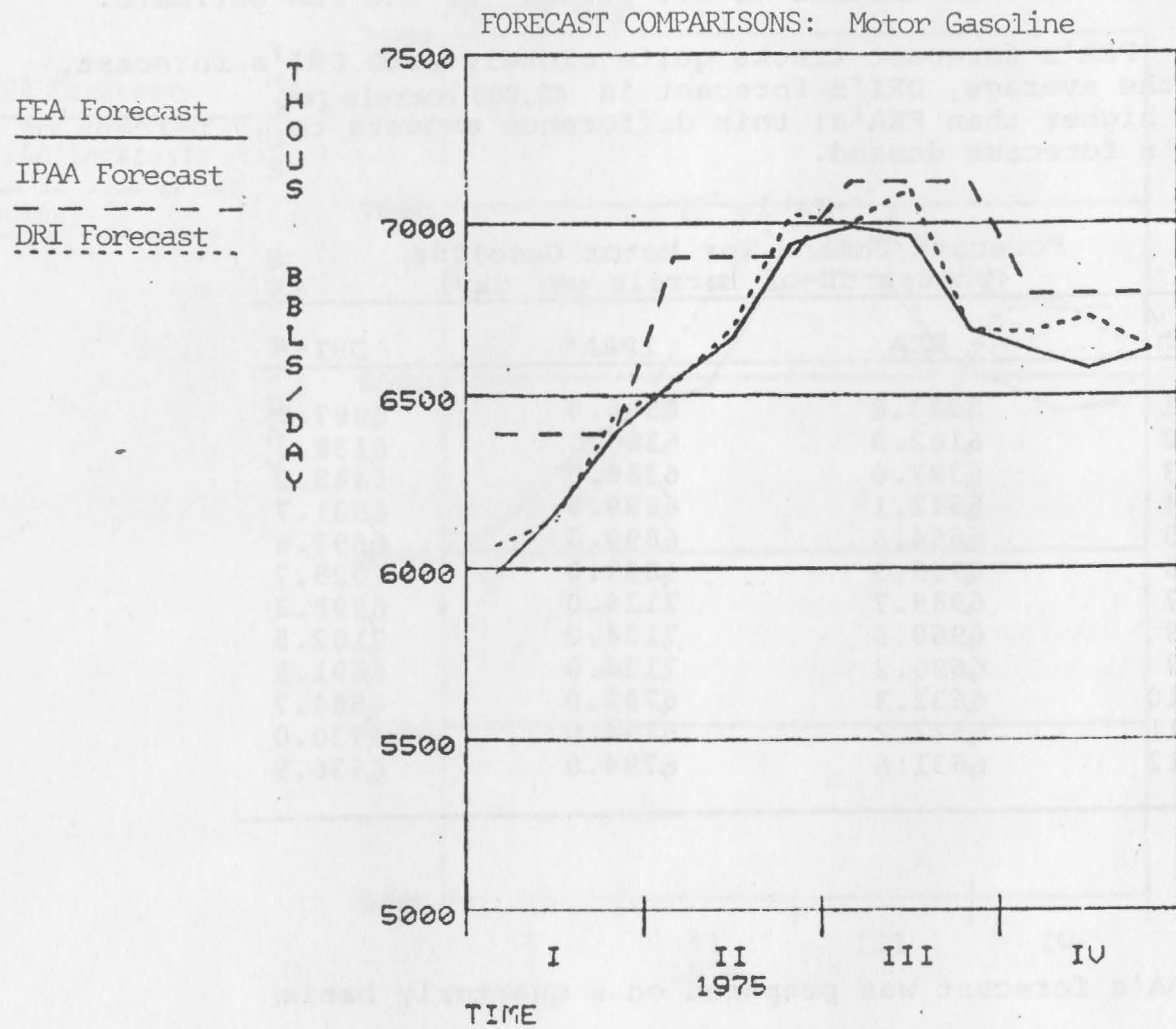
Forecast Demand for Motor Gasoline
(thousands of barrels per day)

Year./Month	FEA	IPAA*	DRI**
75:1	5983.8	6386.0	6067.0
75:2	6162.9	6386.0	6138.3
75:3	6387.0	6386.0	6443.2
75:4	6542.1	6899.0	6531.7
75:5	6664.8	6899.0	6697.6
75:6	6939.3	6899.0	7025.7
75:7	6989.7	7124.0	6998.2
75:8	6960.6	7124.0	7102.5
75:9	6690.2	7124.0	6691.1
75:10	6632.3	6794.0	6684.7
75:11	6577.2	6794.0	6730.0
75:12	6631.6	6794.0	6636.9

*IPAA's forecast was prepared on a quarterly basis.

**The Data Resources petroleum demand forecast was prepared in October of 1974 and utilizes the Control 10/22 DRI macroeconomic simulation of the national economy.

FIGURE 5



MOTOR GASOLINE ANALYSIS
OVER FORECAST INTERVAL

6. EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:1	75:2	75:3	75:4	75:5
MOTOR GASOLINE DEMAND	5983.8	6162.9	6387.0	6542.1	6664.8
CHANGE	-439.6	179.0	224.2	155.1	122.7
INDEPENDENT VARIABLES					
REAL, DISPOSABLE PERSONAL INCOME	588.1	584.8	586.2	589.2	590.6
CHANGE	-5.2	-3.3	1.4	2.9	1.4
INCOME ELASTICITY	0.55	0.54	0.52	0.51	0.50
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	-29.4	-18.5	8.1	16.6	8.2
RELATIVE PRICE VARIABLE	0.23	0.23	0.23	0.23	0.23
CHANGE	0.00	0.00	0.00	0.00	0.00
PRICE ELASTICITY	-0.16	-0.16	-0.15	-0.15	-0.15
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN PRICE	0.0	0.0	0.0	0.0	0.0
TIME TREND VARIABLE	337.0	338.0	339.0	340.0	341.0
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN TREND VARIABLE	11.3	11.3	11.3	11.3	11.3
EXPORTS	2.0	2.0	2.0	4.0	4.0
CHANGE	0.0	0.0	0.0	2.0	0.0
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0	0.0	-2.0	0.0
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO SEASONAL FACTORS	-421.5	186.2	204.8	125.2	103.3
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO ADDFACTORS	0.0	0.0	0.0	0.0	0.0
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	0.0	-0.0	0.0	0.0

MOTOR GASOLINE ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:6	75:7	75:8	75:9	75:10
MOTOR GASOLINE DEMAND	6939.3	6989.7	6960.6	6690.2	6632.3
CHANGE	274.4	50.4	-29.1	-270.4	-57.9

INDEPENDENT VARIABLES

REAL DISPOSABLE PERSONAL INCOME	592.3	593.7	595.4	598.1	601.5
CHANGE	1.7	1.4	1.7	2.7	3.3
INCOME ELASTICITY	0.48	0.48	0.48	0.50	0.51
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	9.5	8.0	9.5	15.4	18.7

RELATIVE PRICE VARIABLE	0.23	0.23	0.23	0.23	0.23
CHANGE	0.00	0.00	0.00	0.00	0.00
PRICE ELASTICITY	-0.14	-0.14	-0.14	-0.15	-0.15
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN PRICE	0.0	0.0	0.0	0.0	0.0

TIME TREND VARIABLE	342.0	343.0	344.0	345.0	346.0
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN TREND VARIABLE	11.3	11.3	11.3	11.3	11.3

EXPORTS	4.0	2.0	2.0	2.0	2.0
CHANGE	0.0	-2.0	0.0	0.0	0.0
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	-2.0	0.0	0.0	0.0

CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO SEASONAL FACTORS	253.7	33.2	-49.9	-297.0	-87.9
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CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO ADDFACTORS	0.0	0.0	0.0	0.0	0.0
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CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	0.0	-0.0	0.0	0.0
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MOTOR GASOLINE ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:11	75:12
MOTOR GASOLINE DEMAND	6577.2	6631.6
CHANGE	-55.1	54.4

INDEPENDENT VARIABLES

REAL DISPOSABLE PERSONAL INCOME	604.2	606.2
CHANGE	2.7	2.0
INCOME ELASTICITY	0.52	0.52
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	15.4	11.4

RELATIVE PRICE VARIABLE	0.23	0.23
CHANGE	0.00	0.00
PRICE ELASTICITY	-0.15	-0.15
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN PRICE	0.0	0.0

TIME TREND VARIABLE	347.0	348.0
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN TREND VARIABLE	11.3	11.3

EXPORTS	2.0	2.0
CHANGE	0.0	0.0
CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0

CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO SEASONAL FACTORS	-81.8	31.7
---	-------	------

CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO ADDFACTORS	0.0	0.0
---	-----	-----

CHANGE IN MOGAS DEMAND ATTRIBUTABLE TO OTHER FACTORS	0.0	-0.0
--	-----	------

D. Distillate

1. Definition

A general classification for one of the petroleum fractions which, when produced in conventional distillation operations, has a boiling range from 10 percent point at 300°F to 90 percent at 675°F. Included are products known as No. 1 and No. 2 heating oils and diesel fuels. No. 4 fuel oil is also included with distillate fuel oil. No. 4 oil is not equipped with preheating facilities. Extensively used in industrial plants, this grade is a blend of distillate fuel oil and residual fuel oil stocks. Tentative ASTM D396 specifications for this grade specify kinematic viscosities between 5.8 and 26.4 centiscopes at 100°F.

2. Demand Comparisons

Table 32

Demand Comparisons - Distillates

Year	Base Case	Policy Option Case	Difference	Percent Difference
75:1	4210.	4210.	0.0	0.0
75:2	3977.	3977.	0.0	0.0
75:3	3561.	3557.	-3.6	-0.1
75:4	2896.	2886.	-9.9	-0.3
75:5	2533.	2421.	-111.9	-4.4
75:6	2208.	2080.	-128.7	-5.8
75:7	2147.	2001.	-146.4	-6.8
75:8	2159.	1997.	-162.2	-7.5
75:9	2339.	2166.	-172.6	-7.4
75:10	2825.	2633.	-191.6	-6.8
75:11	3416.	3203.	-212.8	-6.2
75:12	4131.	3893.	-238.4	-5.8

National Supply and Demand Balance:
Distillate, Base Case

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	326.0	788.8	1,050.0	101.1	220.1	2,486.0
% YIELD	23.7	25.4	21.8	23.4	11.8	21.4
BLEND			1.7			1.7
IMPORTS						
SHIPMENTS	27.9	31.6	1,137.2	27.8		1,224.5
RECEIPTS	1,086.6	84.4	27.2	2.1	24.2	1,224.5
FROM INV.	843.7	239.6	359.4	4.6	42.0	1,489.4
SUPPLY	2,228.4	1,081.2	301.1	80.0	286.3	3,977.0
DEMAND	2,228.4	1,081.2	301.1	80.0	286.3	3,977.0
SHORT						
OPEN MMB	70.2	57.5	40.6	4.0	13.3	185.6
CLOSE MMB	46.5	50.8	30.5	3.9	12.2	143.9

-TO-

PAD 1		3.6	1,083.0		
PAD 2	27.9		44.0	12.5	
PAD 3		27.2			
PAD 4		.8	1.3		
PAD 5			8.9	15.3	

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	411.8	801.5	1,157.5	105.3	253.0	2,729.0
% YIELD	28.8	24.8	23.4	23.8	13.1	22.8
BLEND			1.7			1.7
IMPORTS	233.5		6.1			239.6
SHIPMENTS	27.9	31.6	1,137.2	22.4		1,219.1
RECEIPTS	1,086.6	79.0	27.2	2.1	24.2	1,219.1
FROM INV.	208.9	139.0	228.3	.4	14.0	590.7
SUPPLY	1,913.0	987.9	283.5	85.4	291.2	3,561.0
DEMAND	1,913.0	987.9	283.5	85.4	291.2	3,561.0
SHORT						
OPEN MMB	46.5	50.8	30.5	3.9	12.2	143.9
CLOSE MMB	40.1	46.5	23.4	3.9	11.7	125.6

-TO-

PAD 1		3.6	1,083.0		
PAD 2	27.9		44.0	7.1	
PAD 3		27.2			
PAD 4		.8	1.3		
PAD 5			8.9	15.3	

(BASE)

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	420.5	804.9	1,186.3	106.1	256.7	2,774.6
% YIELD	28.8	24.4	23.4	23.5	13.0	22.6
BLEND			2.3			2.3
IMPORTS	58.8		4.9			63.7
SHIPMENTS	27.9	31.6	971.2	25.6		1,056.3
RECEIPTS	920.6	82.2	27.2	2.1	24.2	1,056.3
FROM INV.	85.0	48.2	-110.3	11.3	21.3	55.4
	-----	-----	-----	-----	-----	-----
SUPPLY	1,457.0	903.7	139.1	94.0	302.2	2,896.0
DEMAND	1,457.0	903.7	139.1	94.0	302.2	2,896.0
SHORT						
OPEN MMB	40.1	46.5	23.4	3.9	11.7	125.6
CLOSE MMB	37.5	45.1	26.7	3.5	11.1	123.9

-TO-

PAD 1		3.6	917.0		
PAD 2	27.9		44.0	10.3	
PAD 3		27.2			
PAD 4		.8	1.3		
PAD 5			8.9	15.3	

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	437.1	753.9	1,214.0	109.0	258.0	2,772.1
% YIELD	28.8	22.0	23.4	23.5	12.7	21.9
BLEND			1.4			1.4
IMPORTS	58.8		4.9			63.7
SHIPMENTS	27.9	32.1	935.6	24.2		1,019.8
RECEIPTS	885.0	80.8	27.2	2.6	24.2	1,019.8
FROM INV.	-342.7	-45.7	100.5	2.9	-19.1	-304.1
	-----	-----	-----	-----	-----	-----
SUPPLY	1,010.3	756.9	412.4	90.4	263.0	2,533.0
DEMAND	1,010.3	756.9	412.4	90.4	263.0	2,533.0
SHORT						
OPEN MMB	37.5	45.1	26.7	3.5	11.1	123.9
CLOSE MMB	48.1	46.5	23.6	3.4	11.7	133.4

-TO-

PAD 1		3.6	881.4		
PAD 2	27.9		44.0	8.9	
PAD 3		27.2			
PAD 4		1.3	1.3		
PAD 5			8.9	15.3	

(BASE)

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	447.3	716.1	1,243.1	111.6	264.1	2,782.2
% YIELD	28.8	20.4	23.4	23.5	12.7	21.5
BLEND			1.8			1.8
IMPORTS	29.4		4.9			34.3
SHIPMENTS	25.6	33.3	663.4	22.4		744.7
RECEIPTS	614.0	76.7	27.2	2.6	24.2	744.7
FROM INV.	-168.3	-57.6	-353.3	-3.7	-27.2	-610.2
	-----	-----	-----	-----	-----	-----
SUPPLY	896.8	701.9	260.2	88.1	261.0	2,208.0
DEMAND	896.8	701.9	260.2	88.1	261.0	2,208.0
SHORT						
OPEN MMB	48.1	46.5	23.6	3.4	11.7	133.4
CLOSE MMB	53.2	48.2	34.2	3.5	12.5	151.7

-TO-

PAD 1		4.8	609.2		
PAD 2	25.6		44.0	7.1	
PAD 3		27.2			
PAD 4		1.3	1.3		
PAD 5			8.9	15.3	

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	437.1	710.0	1,189.9	110.0	247.0	2,694.0
% YIELD	28.8	20.7	22.9	23.7	12.2	21.3
BLEND			2.2			2.2
IMPORTS	171.9	11.2	48.6		23.0	254.6
SHIPMENTS	27.9	12.0	894.6	19.4		953.9
RECEIPTS	715.9	204.7	9.5	2.6	21.2	953.9
FROM INV.	-457.9	-211.1	-49.4	-3.1	-15.4	-737.1
	-----	-----	-----	-----	-----	-----
SUPPLY	839.1	702.7	306.1	90.1	275.6	2,213.7
DEMAND	839.1	702.7	306.1	90.1	275.6	2,213.7
SHORT						
OPEN MMB	53.2	48.2	34.2	3.5	12.5	151.7
CLOSE MMB	95.3	67.7	38.8	3.8	13.9	219.5

-TO-

PAD 1		1.2	714.7		
PAD 2	27.9		169.7	7.1	
PAD 3		9.5			
PAD 4		1.3	1.3		
PAD 5			8.9	12.3	

(BASE)

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	426.9	794.3	1,143.4	113.1	245.2	2,722.8
% YIELD	28.8	23.7	22.6	25.0	12.4	22.1
BLEND			2.1			2.1
IMPORTS	355.4	2.6	33.5		14.4	405.9
SHIPMENTS	25.6	22.6	1,035.3	22.4		1,105.9
RECEIPTS	917.6	125.5	16.5	2.6	43.7	1,105.9
FROM INV.	102.6	128.4	73.2	8.2	14.6	327.0
	-----	-----	-----	-----	-----	-----
SUPPLY	1,776.9	1,028.1	233.4	101.5	317.9	3,457.8
DEMAND	1,776.9	1,028.1	233.4	101.5	317.9	3,457.8
SHORT						
OPEN MMB	95.3	67.7	38.8	3.8	13.9	219.5
CLOSE MMB	85.9	55.8	32.0	3.1	12.6	189.4
-TO-						
PAD 1		4.8	912.8			
PAD 2	25.6		92.8	7.1		
PAD 3		16.5				
PAD 4		1.3	1.3			
PAD 5			28.4	15.3		

3. The Demand Function

The forecast of the monthly demand for distillate fuel oil is based on the following equation:

$$\begin{aligned}
 \text{DMD291DFNS} &= -1549.55 + 4.92720 * \text{YD58M} \\
 &\quad (-2.16890) \quad (4.23975) \\
 &\quad + .00011882 * (\text{BNMINTERP} * \text{DDNMWT}) \\
 &\quad \quad (4.84712) \\
 &\quad + .348714 * \text{DMD291DFNS} (-12) \\
 &\quad \quad (2.65453)
 \end{aligned}$$

$$\bar{R}^2 = .9622; \text{DW} = 2.3007; \text{SE} = 164.633$$

The variables are:

- DMD291DFNS ≡ domestic total demand for distillate fuel oil, thousands of barrels per day, not seasonally adjusted
- YD58M ≡ monthly disposable personal income in billions of 1958 dollars
- BNMINTERP ≡ number of burner tips in use at end of month
- DDNMWT ≡ national monthly degree days

Constrained demand is derived by the following formula:

$$\begin{aligned}
 \text{CONSTRAINED DEMAND} &= (\text{DMD291DFNS} * \text{PEDIST}) \\
 &\quad + \text{GASDIST} + \text{EXPDIST}
 \end{aligned}$$

where:

- PEDIST ≡ reduction factor applied to DMD291DFNS to reflect higher prices
- GASDIST ≡ additional distillate demand attributable to natural gas curtailments
- EXPDIST ≡ export projection

Note: Estimation Period: 70:6 to 73:6

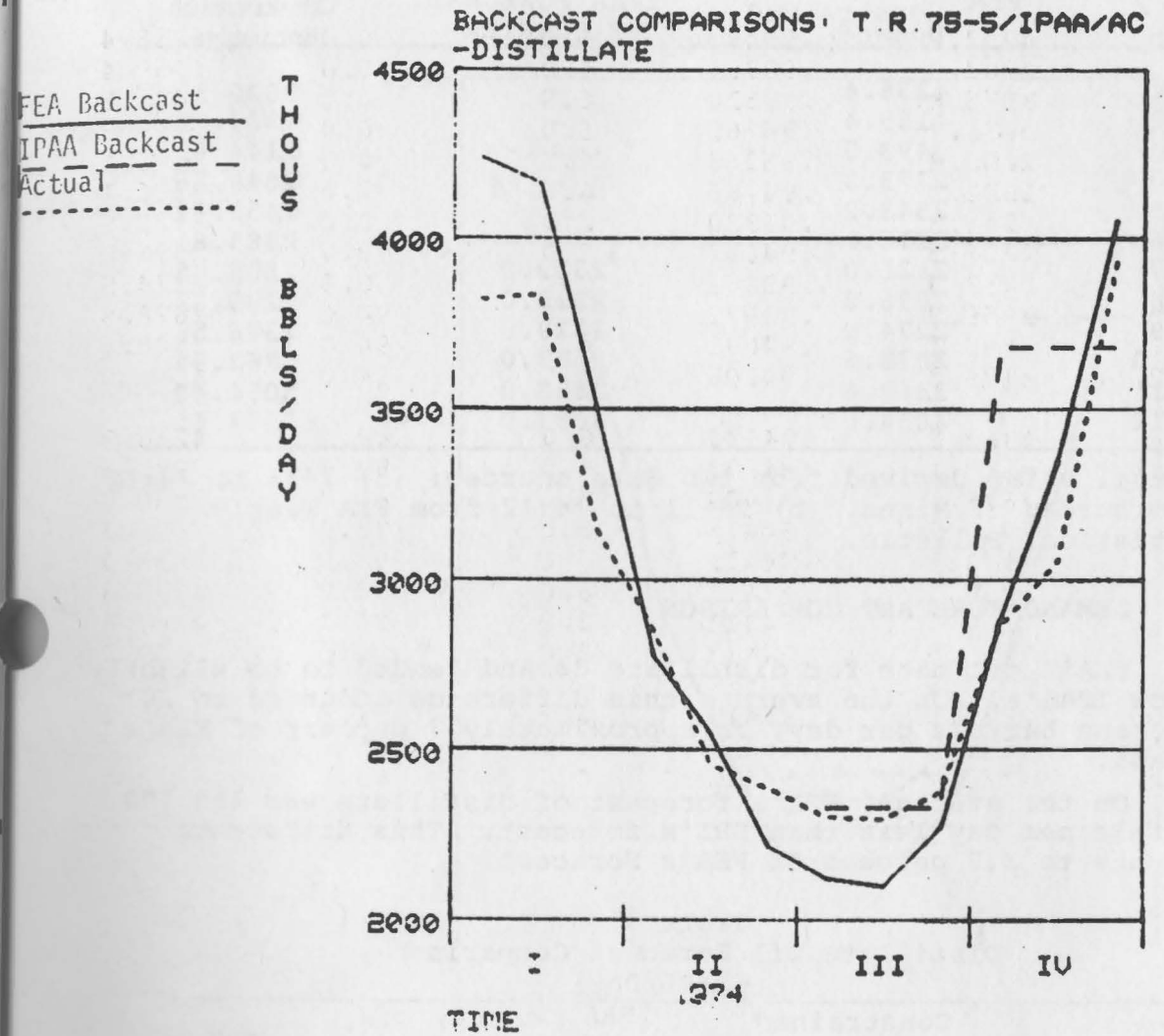


Table 33

Distillate
(thousands of barrels per day)

Year/ Month	DMD291DFNS	PEDIST	EXPDIST	GASDIST	Constrained Demand
74:1	4252.0	0.99491	6.0	0.0	4236.4
74:2	4207.9	.98704	6.0	0.0	4159.4
74:3	3575.8	.97530	6.0	0.0	3493.5
74:4	2871.7	.96366	6.0	0.0	2773.3
74:5	2660.4	.95368	6.0	0.0	2543.2
74:6	2332.1	.94766	6.0	0.0	2216.1
74:7	2246.3	.94330	2.0	0.0	2121.0
74:8	2226.9	.94067	2.0	0.0	2096.8
74:9	2418.9	.93963	2.0	0.0	2274.9
74:10	2958.9	.93972	4.0	94.0	2878.6
74:11	3455.1	.94082	4.0	94.0	3348.6
74:12	4199.3	.94208	4.0	94.0	4054.0
75:1	4362.2	.94338	6.0	89.0	4210.2
75:2	4113.1	.94393	6.0	89.0	3977.5
75:3	3671.1	.94409	6.0	89.0	3560.9
75:4	2962.3	.94416	6.0	93.0	2895.8
75:5	2578.1	.94411	6.0	93.0	2533.0
75:6	2234.1	.94411	6.0	93.0	2208.3
75:7	2170.7	.94411	2.0	96.0	2147.4
75:8	2183.0	.94411	2.0	96.0	2159.0
75:9	2373.4	.94411	2.0	96.0	2338.8
75:10	2888.5	.94411	4.0	94.0	2825.0
75:11	3514.6	.94411	4.0	94.0	3416.2
75:12	4271.7	.94411	4.0	94.0	4130.9

FIGURE 6



4. Backcast Comparison

Table 34
Backcast Comparison
(MB/Day)

Year / Month	FEA Constrained Demand	IPAA FORECAST BY QUARTER	Actual Consumption Estimate *
74:1	4236.4	-	3820.19
74:2	4159.4	-	3835.11
74:3	3493.5	-	3144.61
74:4	2773.3	-	2848.10
74:5	2543.2	-	2453.32
74:6	2216.1	-	2385.81
74:7	2121.0	2329.0	2302.45
74:8	2096.8	2329.0	2295.38
74:9	2274.9	2329.0	2376.58
74:10	2878.6	3683.0	2862.99
74:11	3348.6	3683.0	3054.40
74:12	4054.0	3683.0	3932.61

*Actual value derived from two data sources: (a) 74:1 to 74:10, from Bureau of Mines, (b) 74:11 to 74:12 from FEA Weekly Statistical Bulletin.

5. DEMAND FORECAST COMPARISON

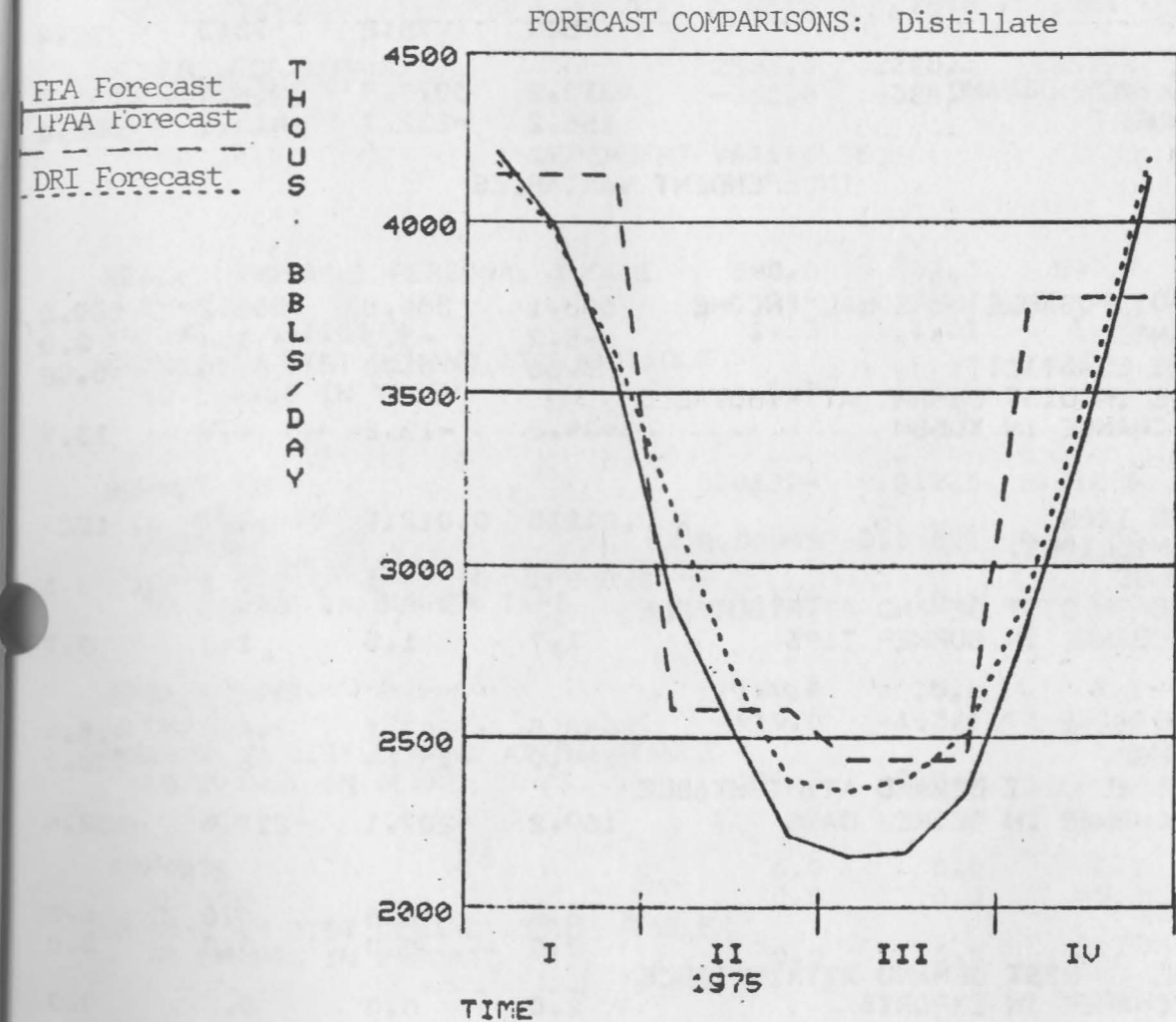
FEA's estimate for distillate demand tended to be slightly below IPAA's. On the average this difference amounted to 201 thousand barrels per day, or approximately 7 percent of FEA's demand.

On the average, FEA's forecast of distillate was 118,700 barrels per day less than DRI's forecast. This difference amounts to 3.9 percent of FEA's Forecast.

Table 35
Distillate Oil Forecast Comparison
(MMBL/Day)

Year / Month	FEA Constrained Demand Forecast	IPAA Quarterly Forecast	DRI
75:1	4210.2	4141.0	4174.6
75:2	3977.5	4141.0	3960.6
75:3	3560.9	4141.0	3614.9
75:4	2895.8	2581.0	3159.9
75:5	2533.0	2581.0	3702.2
75:6	2208.3	2581.0	2373.9
75:7	2147.4	2433.0	2341.5
75:8	2159.0	2433.0	2375.2
75:9	2338.8	2433.0	2511.6
75:10	2825.0	3783.0	2916.9
75:11	3416.2	3783.0	3509.8
75:12	4130.9	3783.0	4186.2

FIGURE 7



DISTILLATE ANALYSIS
OVER FORECAST INTERVAL

6.

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:1	75:2	75:3	75:4
DISTILLATE DEMAND	4210.2	3977.5	3560.9	2895.8
CHANGE	156.2	-232.7	-416.6	-665.0
INDEPENDENT VARIABLES				
REAL DISPOSABLE PERSONAL INCOME	588.1	584.8	586.2	589.2
CHANGE	-5.2	-3.3	1.4	2.9
INCOME ELASTICITY	0.66	0.70	0.79	0.98
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	-24.2	-15.2	6.7	13.7
BURNER TIPS (MILLIONS)	0.01218	0.01219	0.01221	0.01222
CHANGE	0.00001	0.00001	0.00001	0.00001
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN BURNER TIPS	1.7	1.5	1.2	0.7
DEGREE DAYS	1058.5	907.1	748.3	418.4
CHANGE	124.0	-151.4	-158.7	-330.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	169.2	-207.1	-217.4	-452.4
EXPORTS	6.0	6.0	6.0	6.0
CHANGE	2.0	0.0	0.0	0.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	2.0	0.0	0.0	0.0
PRICE REDUCTION FACTOR	0.9434	0.9439	0.9441	0.9441
CHANGE	0.0013	0.0006	0.0002	0.0001
CHANGE IN DIST DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	5.8	2.4	0.6	0.2
ADD FACTOR	89.0	89.0	89.0	93.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO ADD FACTORS	-5.0	0.0	0.0	4.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.6	0.3	0.3	0.6

DISTILLATE ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:5	75:6	75:7	75:8
DISTILLATE DEMAND	2533.0	2208.3	2147.4	2159.0
CHANGE	-362.8	-324.8	-60.9	11.6
INDEPENDENT VARIABLES				
REAL DISPOSABLE PERSONAL INCOME	590.6	592.3	593.7	595.4
CHANGE	1.4	1.7	1.4	1.7
INCOME ELASTICITY	1.13	1.31	1.35	1.34
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	6.7	7.8	6.6	7.8
BURNER TIPS (MILLIONS)	0.01224	0.01225	0.01226	0.01228
CHANGE	0.00001	0.00001	0.00001	0.00001
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN BURNER TIPS	0.3	0.1	0.0	0.0
DEGREE DAYS	199.4	35.8	8.0	15.3
CHANGE	-219.0	-163.6	-27.8	7.3
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	-300.5	-224.9	-38.3	10.1
EXPORTS	6.0	6.0	2.0	2.0
CHANGE	0.0	0.0	-4.0	0.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0	-4.0	0.0
PRICE REDUCTION FACTOR	0.9441	0.9441	0.9441	0.9441
CHANGE	-0.0000	0.0000	0.0000	0.0000
CHANGE IN DIST DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	-0.1	0.0	0.0	0.0
ADD FACTOR	93.0	93.0	96.0	96.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	3.0	0.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO OTHER FACTORS	0.3	0.3	0.0	-0.0

DISTILLATE ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:9	75:10	75:11	75:12
DISTILLATE DEMAND	2338.8	2825.0	3416.2	4130.9
CHANGE	179.8	486.2	591.2	714.7

INDEPENDENT VARIABLES

REAL, DISPOSABLE PERSONAL INCOME	598.1	601.5	604.2	606.2
CHANGE	2.7	3.3	2.7	2.0
INCOME ELASTICITY	1.24	1.03	0.85	0.70
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	12.7	15.5	12.7	9.4
BURNER TIPS (MILLIONS)	0.01229	0.01231	0.01232	0.01234
CHANGE	0.0001	0.0001	0.0001	0.0001
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN BURNER TIPS	0.1	0.5	1.0	1.5
DEGREE DAYS	90.6	302.7	602.7	934.6
CHANGE	75.3	212.1	299.9	331.9
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	103.9	292.8	414.6	459.3
EXPORTS	2.0	4.0	4.0	4.0
CHANGE	0.0	2.0	0.0	0.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	2.0	0.0	0.0
PRICE REDUCTION FACTOR	0.9441	0.9441	0.9441	0.9441
CHANGE	0.0000	0.0000	0.0000	0.0000
CHANGE IN DIST DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	0.0	0.0	0.0	0.0
ADD FACTOR	96.0	94.0	94.0	94.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	-2.0	0.0	0.0
CHANGE IN DIST DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.1	-0.3	-0.5	-0.5

E. Residual

1. Definition

Topped crude oil obtained in refinery operations, includes ASTM Grades No. 5 and No. 6, heavy diesel, Navy Special, and Bunker C oils used for generation of heat and/or power. Also includes acid sludge and sludge used for refinery fuels.

2. Demand Comparisons

Table 36
Demand Comparisons - Residual

Year	Base Case	Policy Option Case	Difference	Percent Difference
75:1	2834.0	2810.0	-24.5	-0.9
75:2	2,651.0	2625.0	-26.1	-1.0
75:3	2477.0	2441.0	-35.9	-1.4
75:4	2116.0	2043.0	-73.5	-3.5
75:5	1927.0	1778.0	-148.5	-7.7
75:6	1986.0	1815.0	-171.2	-8.6
75:7	1913.0	1702.0	-211.0	-11.0
75:8	1953.0	1735.0	-218.3	-11.2
75:9	1938.0	1716.0	-222.7	-11.5
75:10	2039.0	1782.0	-257.2	-12.6
75:11	2389.0	2106.0	-282.6	-11.8
75:12	2775.0	2465.0	-310.1	-11.2

National Supply and Demand Balance:
Residual, Base Case

(BASE)

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	123.8	220.5	222.9	20.6	352.5	940.4
% YIELD	9.0	7.1	4.6	4.8	18.9	8.1
IMPORTS	1,385.3					1,385.3
SHIPMENTS			148.6			148.6
RECEIPTS	119.0	21.3			8.3	148.6
FROM INV.	239.5	37.6	43.7	6.2	-1.7	325.3
	-----	-----	-----	-----	-----	-----
SUPPLY	1,867.7	279.4	118.1	26.8	359.1	2,651.0
DEMAND	1,867.7	279.4	118.1	26.8	359.1	2,651.0
SHORT						
OPEN MMB	25.2	7.9	9.7	.6	10.9	54.2
CLOSE MMB	18.4	6.8	8.5	.4	10.9	45.1

-TO-

PAD 1	119.0
PAD 2	21.3
PAD 5	8.3

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	151.6	203.1	213.2	22.6	381.0	971.4
% YIELD	10.6	6.3	4.3	5.1	19.7	8.1
IMPORTS	1,662.4		13.1			1,675.5
SHIPMENTS			140.3			140.3
RECEIPTS	119.0	21.3				140.3
FROM INV.	-99.9	-14.4	24.0	-2.4	-77.1	-169.9
	-----	-----	-----	-----	-----	-----
SUPPLY	1,833.0	210.0	110.0	20.1	303.9	2,477.0
DEMAND	1,833.0	210.0	110.0	20.1	303.9	2,477.0
SHORT						
OPEN MMB	18.4	6.8	8.5	.4	10.9	45.1
CLOSE MMB	21.5	7.3	7.8	.5	13.3	50.4

-TO-

PAD 1	119.0
PAD 2	21.3

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	154.8	188.0	217.3	21.2	332.0	913.3
% YIELD	10.6	5.7	4.3	4.7	16.8	7.5
IMPORTS	1,145.9		12.1			1,157.9
SHIPMENTS			140.3			140.3
RECEIPTS	119.0	21.3				140.3
FROM INV.	104.9	-31.4	.9	-1.6	-49.1	23.6
	-----	-----	-----	-----	-----	-----
SUPPLY	1,524.5	177.8	90.1	19.6	282.8	2,094.8
DEMAND	1,524.5	177.8	90.1	19.6	282.8	2,094.8
SHORT						
OPEN MMB	21.5	7.3	7.8	.5	13.3	50.4
CLOSE MMB	18.4	8.2	7.7	.5	14.8	49.6

-TO-

PAD 1	119.0
PAD 2	21.3

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	160.9	152.5	217.9	21.8	329.1	882.2
% YIELD	10.6	4.4	4.2	4.7	16.2	7.0
IMPORTS	1,235.5		14.1			1,249.6
SHIPMENTS			140.3			140.3
RECEIPTS	119.0	21.3				140.3
FROM INV.	-97.4	-41.0	8.2	-2.5	-52.7	-185.5
	-----	-----	-----	-----	-----	-----
SUPPLY	1,418.0	132.7	99.9	19.3	276.4	1,946.3
DEMAND	1,418.0	132.7	99.9	19.3	276.4	1,946.3
SHORT						
OPEN MMB	18.4	8.2	7.7	.5	14.8	49.6
CLOSE MMB	21.4	9.5	7.5	.6	16.4	55.4

-TO-

PAD 1	119.0
PAD 2	21.3

(BASE)

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	164.6	132.3	223.1	22.3	336.8	879.2
% YIELD	10.6	3.8	4.2	4.7	16.2	6.8
IMPORTS	1,145.4		18.1			1,163.5
SHIPMENTS			140.3			140.3
RECEIPTS FROM INV.	119.0	21.3				140.3
	9.8	-21.0	18.2	-3.8	-59.7	-56.6
SUPPLY	1,438.8	132.5	119.2	18.5	277.0	1,986.0
DEMAND	1,438.8	132.5	119.2	18.5	277.0	1,986.0
SHORT						
OPEN MMB	21.4	9.5	7.5	.6	16.4	55.4
CLOSE MMB	21.1	10.1	6.9	.7	18.2	57.1

-TO-

PAD 1	119.0
PAD 2	21.3

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	160.9	116.6	239.4	22.6	303.7	843.2
% YIELD	10.6	3.4	4.6	4.9	14.9	6.7
IMPORTS	1,176.2					1,176.2
SHIPMENTS			140.3			140.3
RECEIPTS FROM INV.	119.0	21.3				140.3
	-14.6	-.7	-16.2	-4.3	-48.7	-84.7
SUPPLY	1,441.4	137.1	82.9	18.2	254.9	1,934.6
DEMAND	1,441.4	137.1	82.9	18.2	254.9	1,934.6
SHORT						
OPEN MMB	21.1	10.1	6.9	.7	18.2	57.1
CLOSE MMB	22.5	10.2	8.4	1.1	22.7	64.9

-TO-

PAD 1	119.0
PAD 2	21.3

(BASE)

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	157.1	177.4	226.0	26.6	304.1	891.2
% YIELD	10.6	5.3	4.5	5.9	15.3	7.2
IMPORTS	1,445.9	4.2	3.3			1,453.4
SHIPMENTS			143.6			143.6
RECEIPTS FROM INV.	119.0	24.6				143.6
	6.7	9.2	-.8	1.6	39.8	56.5
SUPPLY	1,728.7	215.4	84.8	28.2	344.0	2,401.1
DEMAND	1,728.7	215.4	84.8	28.2	344.0	2,401.1
SHORT						
OPEN MMB	22.5	10.2	8.4	1.1	22.7	64.9
CLOSE MMB	21.9	9.4	8.5	1.0	19.0	59.7

-TO-

PAD 1	119.0
PAD 2	24.6

3. The Demand Function

The forecast for the monthly demand for residual oil is based on the following equation:

$$\begin{aligned}
 \text{DMD291RFNS} &= 548.369 - 2.83877 * \text{YD58M} + 1.19227 \\
 &\quad (.224889) \quad (-.381127) \quad (1.25896) \\
 &+ \text{DDNMWT} + .0571744 * (\text{DDNMWT} * \text{JFRB491RES}) \\
 &\quad (.0917195) \\
 &+ 3.86937 * (\text{YD58M} * \text{JFRB491IND}) \\
 &\quad (1.52738) \\
 &+ 60.7260 * \text{SEASONMO5} + 341.094 * \text{SEASONMO6} \\
 &\quad (.601847) \quad (3.23818) \\
 &+ 289.123 * \text{SEASONMO7} + 326.628 * \text{SEASONMO8} \\
 &\quad (2.52329) \quad (2.83745) \\
 &+ 189.253 * \text{SEASONMO9} \\
 &\quad (1.72563)
 \end{aligned}$$

$\bar{R}^2 = .9179$; DW = 2.4643; SE = 132.193. The variables are:

- DMD291RFNS \equiv domestic total demand for residual fuel oil, thousands of barrels per day, not seasonally adjusted;
- YD58M \equiv monthly disposable personal income, billions of 1958 dollars;
- DDNMWT \equiv national monthly degree days;
- JFRB491RES \equiv FRB index of electric power production for residential electricity;
- JFRB491IND \equiv FRB index of electric power production for industrial electricity;
- SEASONMO5 \equiv seasonal dummy variables for May, June, July, August, September, respectively.

NOTE: Estimation period: 70:6 to 73:6

Constrained demand is derived with the following formula:

$$\begin{aligned}
 \text{CONSTRAINED DEMAND} &= (\text{DMD291RFNS} * \text{PERESID}) + \text{GASRESID} \\
 &+ \text{EXPRESID}
 \end{aligned}$$

where:

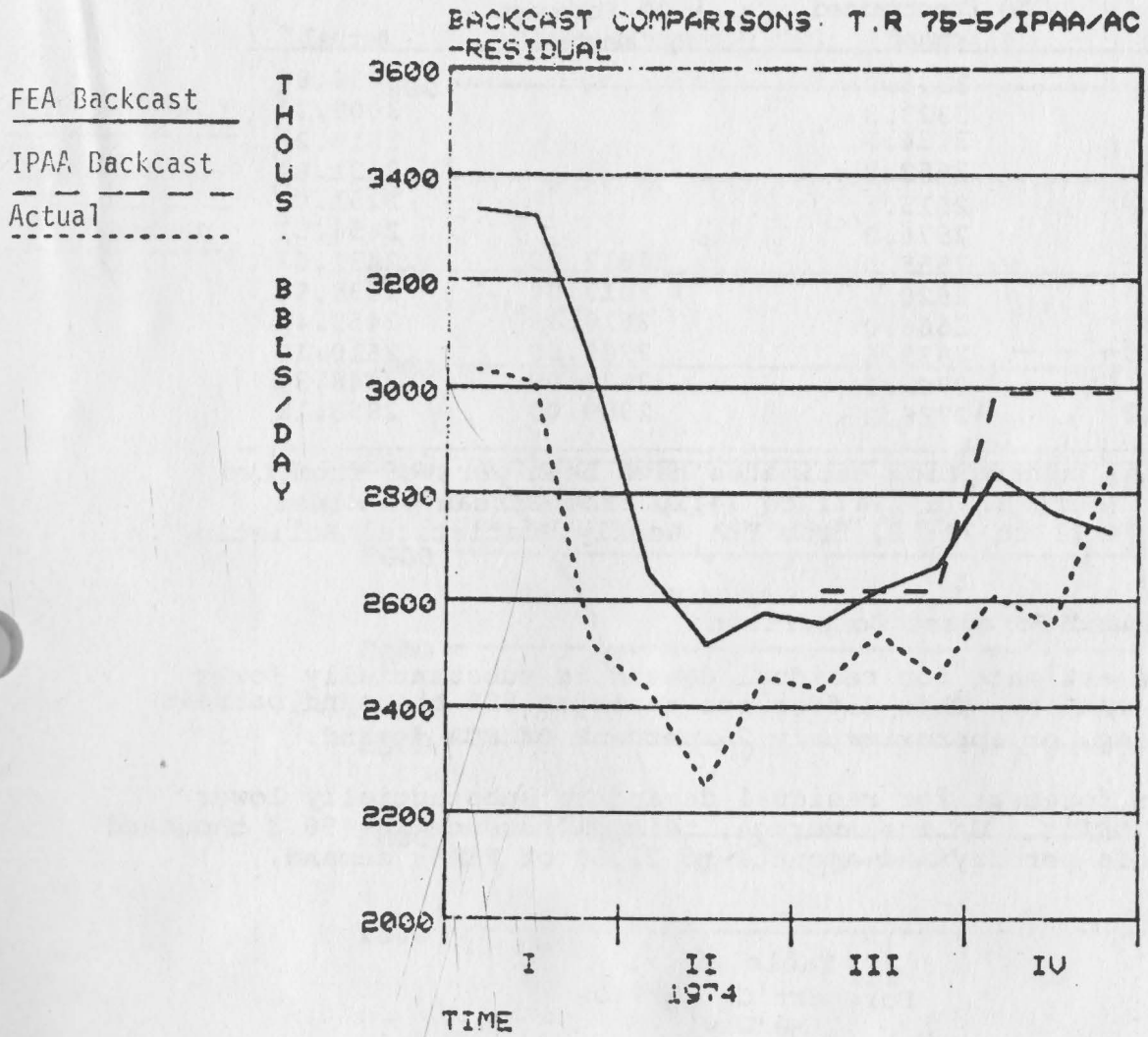
- PERESID \equiv price reduction factor for residual
- GASRESID \equiv additional residual demand attributable to natural gas curtailments
- EXPRESID \equiv exports of residual

Table 37

Residual

Year / Month	DMD291RFNS	PERESID	EXPRESID	GASRESID	Constrained Demand
74:1	3,303.0	1.0	31.0	0.0	3,334.0
74:2	3,292.3	1.0	31.0	0.0	3,323.3
74:3	3,003.8	1.0	31.0	0.0	3,034.8
74:4	2,623.8	1.0	29.0	0.0	2,652.8
74:5	2,486.1	1.0	29.0	0.0	2,515.1
74:6	2,547.0	1.0	29.0	0.0	2,576.0
74:7	2,521.5	1.0	34.0	0.0	2,555.5
74:8	2,586.6	1.0	34.0	0.0	2,620.6
74:9	2,632.0	1.0	34.0	0.0	2,666.0
74:10	2,749.6	1.0	37.0	53.0	2,839.6
74:11	2,675.1	1.0	37.0	53.0	2,765.1
74:12	3,104.1	0.84927	37.0	53.0	2,726.2
75:1	3,237.8	.85034	31.0	50.0	2,834.3
75:2	3,018.2	.85163	31.0	50.0	2,651.4
75:3	2,812.1	.85194	31.0	50.0	2,476.8
75:4	2,391.9	.85158	29.0	50.5	2,116.4
75:5	2,168.6	.85186	29.0	50.5	1,926.8
75:6	2,237.5	.85213	29.0	50.5	1,986.1
75:7	2,142.4	.85219	34.0	53.5	1,913.2
75:8	2,189.4	.85214	34.0	53.5	1,953.2
75:9	2,172.0	.85214	34.0	53.5	1,938.3
75:10	2,286.9	.85214	37.0	53.0	2,038.8
75:11	2,697.6	.85214	37.0	53.0	2,388.7
75:12	3,151.3	.85214	37.0	53.0	2,775.3

FIGURE 8



4. Backcast Comparison

Table 38
Residual Oil
(MB/Day)

Year / Month	FEA Constrained Demand	IPAA Forecast By Quarter	Actual*
74:1	3334.0		3034.80
74:2	3323.3		3009.73
74:3	3034.8		2516.22
74:4	2652.8		2431.61
74:5	2515.1		2251.03
74:6	2576.0		2454.51
74:7	2555.5	2617.00	2431.67
74:8	2620.6	2617.00	2538.90
74:9	2666.0	2617.00	2453.48
74:10	2839.6	2989.00	2610.19
74:11	2765.1	2989.00	2548.31
74:12	2726.2	2989.00	2853.18

* Actual consumption estimates have been derived from two data sources: (a) 74:1 to 74:10 from Bureau of Mines. (b) 74:11 to 74:12, from FEA Weekly Statistical Bulletin.

5. Demand Forecast Comparison

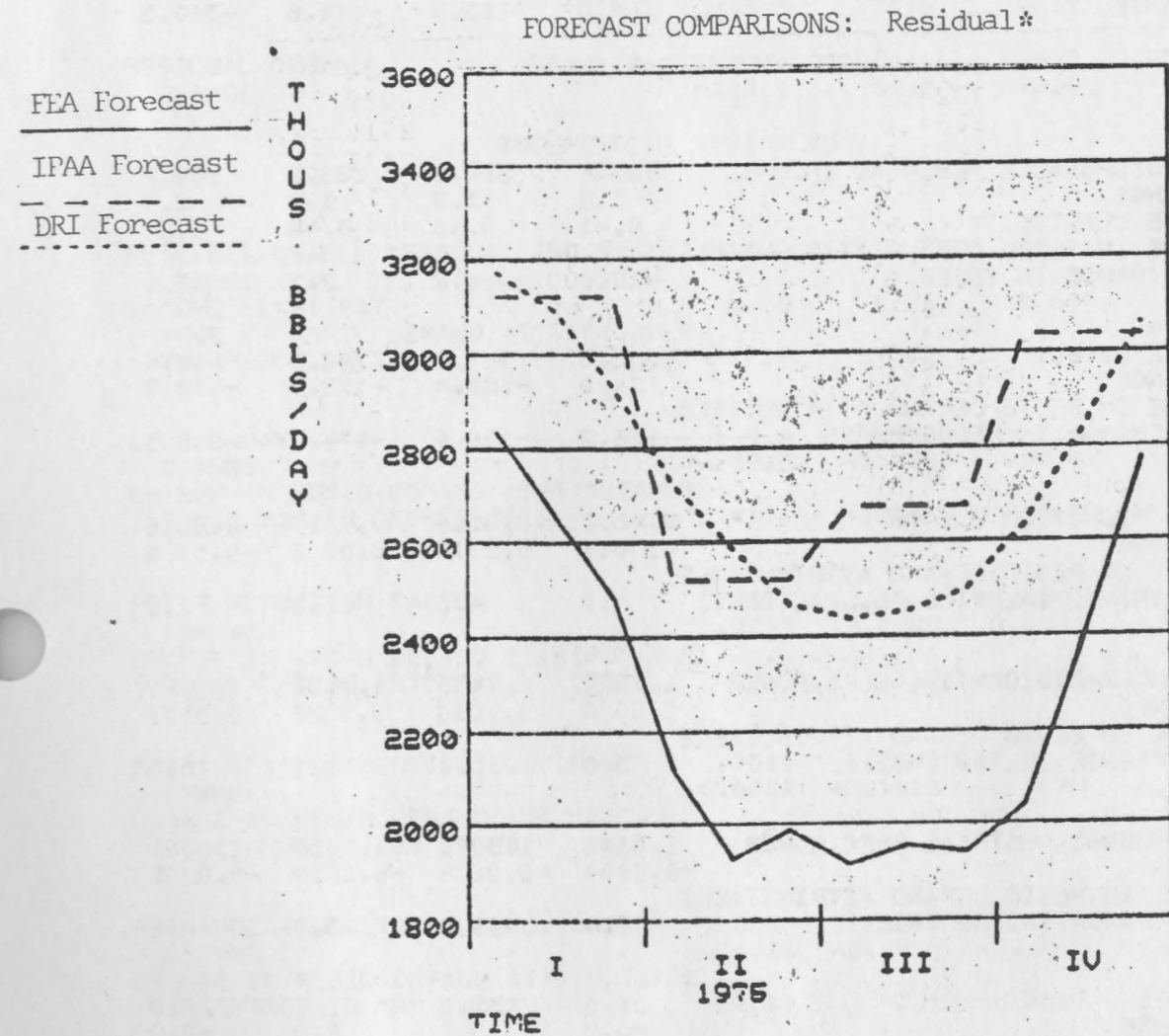
FEA's estimate for residual demand is substantially lower than IPAA's. This difference averages 588 thousand barrels per day, or approximately 26 percent of FEA demand.

FEA's forecast for residual demand is substantially lower than DRI's. On the average, this difference is 490.3 thousand barrels per day and amounts to 21.8% of FEA's demand.

Table 39
Forecast Comparison
(MB/Day)

Year / Month	FEA Constrained Demand	IPAA Forecast By Quarter	DRI
75:1	2834.3	3122.00	3172.9
75:2	2651.4	3122.00	3091.4
75:3	2476.8	3122.00	2924.9
75:4	2116.4	2520.00	2722.6
75:5	1926.8	2520.00	2587.0
75:6	1986.1	2520.00	2468.2
75:7	1913.2	2674.00	2436.7
75:8	1953.2	2674.00	2450.9
75:9	1938.3	2674.00	2496.4
75:10	2038.8	3035.00	2632.8
75:11	2388.7	3035.00	2837.4
75:12	2775.3	3035.00	3061.4

FIGURE 9



* Residual fuel oil consumption as forecast by FEA for 1975 generally falls below projections made by IPAA and DRI. Provisional research results suggest that the currently employed price adjustment factor is too large and that a more complex structure of fuel switching must be accounted for. Appropriate amendments to the forecasting equation had not been determined and validated in time for this publication.

RESIDUAL ANALYSIS
OVER FORECAST INTERVAL

6. EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:1	75:2	75:3	75:4
RESIDUAL DEMAND CHANGE	2834.3 108.0	2651.4 -182.9	2476.8 -174.6	2116.4 -360.3
INDEPENDENT VARIABLES				
REAL, DISPOSABLE PERSONAL INCOME CHANGE	588.1 -5.2	584.8 -3.3	586.2 1.4	589.2 2.9
INCOME ELASTICITY	0.41	0.43	0.46	0.54
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	-10.0	-6.2	2.7	5.5
DEGREE DAYS CHANGE	1058.5 124.0	907.1 -151.4	748.3 -158.7	418.4 -330.0
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	136.2	-166.6	-174.7	-363.1
PRICE REDUCTION FACTOR CHANGE	0.8503 0.0011	0.8516 0.0013	0.8519 0.0013	0.8516 -0.0014
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN PRICE ADJ. FACTOR	4.0	4.6	1.0	-1.0
FRB INDEX-RESIDENTIAL ELEC. POWER CHANGE	1.7420 0.0004	1.7430 0.0010	1.7452 0.0022	1.7489 0.0037
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN FRB INDEX	0.0	0.0	0.1	0.1
FRB INDEX-INDUSTRIAL ELEC. POWER CHANGE	1.3146 -0.0064	1.3073 -0.0074	1.3054 -0.0019	1.3052 -0.0002
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN FRB INDEX	-12.4	-14.2	-3.7	-0.4
EXPORTS CHANGE	31.0 -6.0	31.0 0.0	31.0 0.0	29.0 -2.0
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	-6.0	0.0	0.0	-2.0
SEASONAL FACTORS CHANGE IN RESID DEMAND ATTRIBUTABLE TO SEASONAL FACTORS	548.4 0.0	548.4 0.0	548.4 0.0	548.4 0.0
ADDFACTOR CHANGE IN RESID DEMAND ATTRIBUTABLE TO ADD FACTORS	50.0 -3.0	50.0 0.0	50.0 0.0	50.5 0.5
CHANGE IN RESID DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.8	-0.5	-0.0	0.0

RESIDUAL ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:5	75:6	75:7	75:8
RESIDUAL DEMAND CHANGE	1926.8 -189.6	1986.1 59.3	1913.2 -72.9	1953.2 39.9
INDEPENDENT VARIABLES				
REAL, DISPOSABLE PERSONAL INCOME CHANGE	590.6 1.4	592.3 1.7	593.7 1.4	595.4 1.7
INCOME ELASTICITY	0.60	0.58	0.60	0.59
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	2.7	3.2	2.6	3.1
DEGREE DAYS CHANGE	199.4 -219.0	35.8 -163.6	8.0 -27.8	15.3 7.3
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	-241.1	-180.2	-30.7	8.1
PRICE REDUCTION FACTOR CHANGE	0.8519 0.0003	0.8521 0.0003	0.8522 0.0001	0.8521 -0.0000
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN PRICE ADJ. FACTOR	0.7	0.7	0.2	-0.1
FRB INDEX-RESIDENTIAL ELEC. POWER CHANGE	1.7511 0.0022	1.7498 -0.0013	1.7465 -0.0034	1.7452 -0.0013
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN FRB INDEX	0.0	-0.0	-0.0	-0.0
FRB INDEX-INDUSTRIAL ELEC. POWER CHANGE	1.3033 -0.0019	1.3016 -0.0016	1.2972 -0.0045	1.2956 -0.0016
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN FRB INDEX	-3.7	-3.1	-8.7	-3.2
EXPORTS CHANGE	29.0 0.0	29.0 0.0	34.0 5.0	34.0 0.0
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0	5.0	0.0
SEASONAL FACTORS CHANGE IN RESID DEMAND ATTRIBUTABLE TO SEASONAL FACTORS	609.1 51.7	889.5 238.9	837.5 -44.3	875.0 32.0
ADDFACTOR CHANGE IN RESID DEMAND ATTRIBUTABLE TO ADD FACTORS	50.5 0.0	50.5 0.0	53.5 3.0	53.5 0.0
CHANGE IN RESID DEMAND ATTRIBUTABLE TO OTHER FACTORS	0.0	-0.1	0.0	0.0

RESIDUAL ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:9	75:10	75:11	75:12
RESIDUAL DEMAND	1938.3	2038.8	2388.7	2775.3
CHANGE	-14.8	100.4	350.0	386.6

INDEPENDENT VARIABLES

REAL DISPOSABLE PERSONAL INCOME	598.1	601.5	604.2	606.2
CHANGE	2.7	3.3	2.7	2.0
INCOME ELASTICITY	0.61	0.59	0.51	0.44
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	5.1	6.3	5.3	4.0

DEGREE DAYS	90.6	302.7	602.7	934.6
CHANGE	75.3	212.1	299.9	331.9
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	82.9	233.6	330.3	365.6

PRICE REDUCTION FACTOR	0.8521	0.8521	0.8521	0.8521
CHANGE	0.0000	0.0000	0.0000	0.0000
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN PRICE ADJ.FACTOR	0.0	0.0	0.0	0.0

FRB INDEX-RESIDENTIAL ELEC.POWER	1.7469	1.7479	1.7496	1.7560
CHANGE	0.0017	0.0011	0.0017	0.0064
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN FRB INDEX	0.0	0.0	0.0	0.3

FRB INDEX-INDUSTRIAL ELEC.POWER	1.3028	1.3126	1.3198	1.3283
CHANGE	0.0072	0.0098	0.0072	0.0085
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN FRB INDEX	14.2	19.4	14.4	16.9

EXPORTS	34.0	37.0	37.0	37.0
CHANGE	0.0	3.0	0.0	0.0
CHANGE IN RESID DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	3.0	0.0	0.0

SEASONAL FACTORS	737.6	548.4	548.4	548.4
CHANGE IN RESID DEMAND ATTRIBUTABLE TO SEASONAL FACTORS	-117.1	-161.3	0.0	0.0

ADDFACTOR	53.5	53.0	53.0	53.0
CHANGE IN RESID DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	-0.5	0.0	0.0

CHANGE IN RESID DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.1	-0.1	-0.1	-0.1
--	------	------	------	------

F. Kerosene - Type Jet Fuel

1. Definition

A quality kerosene product with an average gravity of 40.7° API and 10 percent to 90 percent distillation temperatures of 390°F to 470°F covered by ASTM D 1655 specifications. Used primarily as fuel for commercial turbojet and turboprop aircraft engines. A relatively low freezing point distillate of the kerosene type. Includes military JP-5.

2. Demand Comparisons

Table 40

Demand Comparison for Kerosene Jet
(thousands of barrels per day)

Year	Base Case	Policy Option Case	Difference	Percent Difference
75:1	753.5	753.5	0.0	0.0
75:2	719.3	718.8	-0.6	-0.1
75:3	788.0	785.8	-2.2	-0.3
75:4	787.5	782.9	-4.6	-0.6
75:5	818.6	808.5	-10.1	-1.2
75:6	817.4	803.3	-14.2	-1.7
75:7	797.7	780.5	-17.2	-2.2
75:8	821.7	803.0	-18.7	-2.3
75:9	813.7	794.3	-19.4	-2.4
75:10	845.6	824.5	-21.1	-2.5
75:11	819.1	797.8	-21.3	-2.6
75:12	839.7	817.2	-22.5	-2.7

National Supply and Demand Balance
Kerosene Type Jet Fuel, Base Case

(BASE)

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	28.9	99.4	295.5	14.5	175.3	613.6
% YIELD	2.1	3.2	6.1	3.4	9.4	5.3
IMPORTS	48.3	3.1	8.7		28.3	88.5
SHIPMENTS	9.9		303.7	.5		314.1
RECEIPTS	280.3	19.9		9.4	4.4	314.1
FROM INV.	-49.0	13.2	45.2	-3.9	11.5	16.9
	-----	-----	-----	-----	-----	-----
SUPPLY	298.6	135.7	45.6	19.5	219.6	719.0
DEMAND	298.6	135.7	45.6	19.5	219.6	719.0
SHORT						
OPEN MMB	6.4	5.5	6.9	.4	6.2	25.3
CLOSE MMB	7.8	5.1	5.7	.5	5.9	24.9

-TO-	PAD 1	PAD 2	PAD 4	PAD 5
PAD 1			280.3	
PAD 2	9.9		9.4	.3
PAD 4			9.4	
PAD 5			4.2	.2

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	15.7	112.7	309.6	13.3	169.4	620.7
% YIELD	1.1	3.5	6.3	3.0	8.7	5.2
IMPORTS	60.4	4.2	11.5		42.5	118.6
SHIPMENTS	9.9		266.7	.5		277.1
RECEIPTS	218.2	45.1		9.4	4.4	277.1
FROM INV.	65.3	.5	-14.8	-1.2	-1.0	48.6
	-----	-----	-----	-----	-----	-----
SUPPLY	349.7	162.4	39.6	21.0	215.3	788.0
DEMAND	349.7	162.4	39.6	21.0	215.3	788.0
SHORT						
OPEN MMB	7.8	5.1	5.7	.5	5.9	24.9
CLOSE MMB	5.7	5.1	6.1	.5	5.9	23.4

-TO-	PAD 1	PAD 2	PAD 4	PAD 5
PAD 1			218.2	
PAD 2	9.9		34.9	.3
PAD 4			9.4	
PAD 5			4.2	.2

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	16.1	122.0	318.8	15.8	180.3	652.9
% YIELD	1.1	3.7	6.3	3.5	9.1	5.3
IMPORTS	73.0	6.3	21.5		23.6	124.5
SHIPMENTS	9.9		293.3	.5		303.7
RECEIPTS	246.2	43.6		9.4	4.4	303.7
FROM INV.	13.6	-.3	-6.8	-2.8	6.1	9.6
	-----	-----	-----	-----	-----	-----
SUPPLY	339.0	171.6	40.2	21.9	214.4	787.0
DEMAND	339.0	171.6	40.2	21.9	214.4	787.0
SHORT						
OPEN MMB	5.7	5.1	6.1	.5	5.9	23.4
CLOSE MMB	5.3	5.1	6.3	.6	5.7	23.1

-TO-	PAD 1	PAD 2	PAD 4	PAD 5
PAD 1			246.2	
PAD 2	9.9		33.5	.3
PAD 4			9.4	
PAD 5			4.2	.2

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	16.7	142.1	332.0	16.2	188.9	696.0
% YIELD	1.1	4.1	6.4	3.5	9.3	5.5
IMPORTS	60.9	6.3	21.5		35.4	124.2
SHIPMENTS	9.9		281.0	.5		291.3
RECEIPTS	249.0	28.6		9.4	4.4	291.3
FROM INV.	8.3	-9.8	8.1	-5.4	-2.2	-1.1
	-----	-----	-----	-----	-----	-----
SUPPLY	324.9	167.1	80.7	19.8	226.5	819.0
DEMAND	324.9	167.1	80.7	19.8	226.5	819.0
SHORT						
OPEN MMB	5.3	5.1	6.3	.6	5.7	23.1
CLOSE MMB	5.1	5.4	6.1	.8	5.8	23.1

-TO-	PAD 1	PAD 2	PAD 4	PAD 5
PAD 1			249.0	
PAD 2	9.9		18.4	.3
PAD 4			9.4	
PAD 5			4.2	.2

(BASE)

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	17.1	126.4	340.0	16.6	193.4	693.5
% YIELD	1.1	3.6	6.4	3.5	9.3	5.4
IMPORTS	49.4	6.3	16.1		23.6	95.5
SHIPMENTS	9.9		283.3	.5		293.7
RECEIPTS	257.8	22.3		9.2	4.4	293.7
FROM INV.	6.4	3.6	1.5	-2.1	18.7	28.0
	-----	-----	-----	-----	-----	-----
SUPPLY	320.8	158.6	74.3	23.2	240.1	817.0
DEMAND	320.8	158.6	74.3	23.2	240.1	817.0
SHORT						
OPEN MMB	5.1	5.4	6.1	.8	5.8	23.1
CLOSE MMB	4.9	5.3	6.1	.8	5.2	22.3

-TO-

PAD 1		257.8			
PAD 2	9.9	12.1		.3	
PAD 4		9.2			
PAD 5		4.2		.2	

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	16.7	123.5	279.0	15.9	164.9	599.9
% YIELD	1.1	3.6	5.4	3.4	8.1	4.7
IMPORTS	146.5	15.4	22.4		68.6	253.0
SHIPMENTS	9.9		253.4	3.5		266.7
RECEIPTS	214.7	37.8		9.2	5.0	266.7
FROM INV.	-38.9	-8.1	5.4	2.4	-2.3	-41.5
	-----	-----	-----	-----	-----	-----
SUPPLY	329.1	168.5	53.5	24.1	236.1	811.3
DEMAND	329.1	168.5	53.5	24.1	236.1	811.3
SHORT						
OPEN MMB	4.9	5.3	6.1	.8	5.2	22.3
CLOSE MMB	8.5	6.0	5.6	.6	5.4	26.1

-TO-

PAD 1		214.7			
PAD 2	9.9	27.6		.3	
PAD 4		9.2			
PAD 5		1.8		3.2	

(BASE)

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	16.3	126.0	266.3	13.3	159.3	581.3
% YIELD	1.1	3.8	5.3	2.9	8.0	4.7
IMPORTS	134.7	10.5	23.1		76.1	244.4
SHIPMENTS	1.6		256.1	.5		258.1
RECEIPTS	210.2	36.8		9.2	2.0	258.1
FROM INV.	-1.4	3.9	.4	.9	5.8	9.5
	-----	-----	-----	-----	-----	-----
SUPPLY	358.1	177.1	33.8	22.9	243.3	835.2
DEMAND	358.1	177.1	33.8	22.9	243.3	835.2
SHORT						
OPEN MMB	8.5	6.0	5.6	.6	5.4	26.1
CLOSE MMB	8.6	5.7	5.5	.5	4.9	25.2

-TO-

PAD 1		210.2			
PAD 2	1.6	34.9		.3	
PAD 4		9.2			
PAD 5		1.8		.2	

3. The Demand Function

The forecast for the monthly domestic demand for kerosene-based jet fuel is based on the following equation:

$$\begin{aligned} \text{DMD291JETKRNS} &= -24.6849 \\ &\quad (-.682347) \\ &+ 1.52166 * \text{QE\&F451DNS} \\ &\quad (4.25128) \\ &+ 3.56900 * \text{QMLS451DNS} \\ &\quad (6.74012) \end{aligned}$$

$\bar{R}^2 = .8312$; $DW = 1.5649$; $SE = 60.9041$; where DMD291JETKRNS \equiv domestic total demand for kerosene-type jet fuel, thousands of barrels per day, not seasonally adjusted; QE&F451DNS \equiv express and freight ton-miles flown by scheduled domestic trunk lines, not seasonally adjusted; QMLS451DNS \equiv revenue-miles flown by scheduled domestic trunk lines, not seasonally adjusted.

To obtain the constrained demand figures, the following equation is used:

$$\text{CONSTRAINED DEMAND} = (\text{DMD291JETKRNS} * \text{PEKERJET}) + \text{EXPKERJET}$$

PEKERJET \equiv the reduction factor by which kero-jet demand is reduced as a result of higher prices

EXPKERJET \equiv exports of kerosene jet fuel.

Table 41
Kerosene

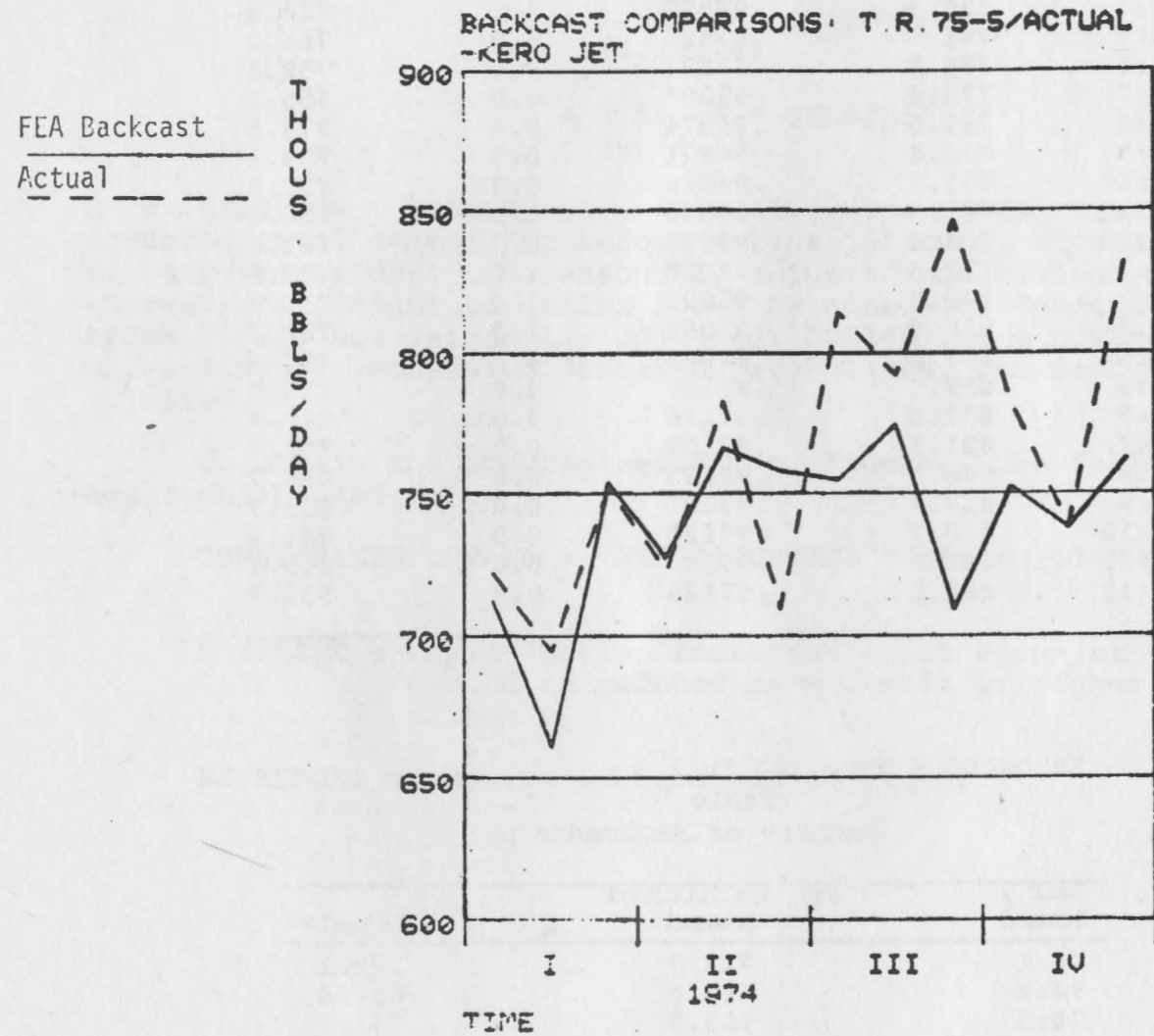
Year / Month	DMD291JETKRNS	PEKERJET	EXPKERJET	Constrained Demand
74:1	715.7	.99405	1.0	712.5
74:2	667.0	.98917	1.0	660.8
74:3	765.3	.98375	1.0	753.8
74:4	739.4	.97899	4.0	727.8
74:5	781.5	.97521	4.0	766.2
74:6	775.7	.97224	4.0	758.1
74:7	778.4	.97004	0.0	755.1
74:8	799.5	.96874	0.0	774.5
74:9	732.4	.96821	0.0	709.1
74:10	777.3	.96818	0.0	752.5
74:11	761.9	.96889	0.0	738.1
74:12	786.4	.96967	0.0	762.5
75:1	775.5	.97026	1.0	753.5
75:2	740.3	.97033	1.0	719.3
75:3	810.9	.97059	1.0	788.0
75:4	807.0	.97083	4.0	787.5
75:5	838.9	.97100	4.0	818.6
75:6	837.6	.97116	4.0	817.4
75:7	821.3	.97127	0.0	797.7
75:8	846.0	.97125	0.0	821.7
75:9	837.8	.97125	0.0	813.7
75:10	870.7	.97125	0.0	845.6
75:11	843.3	.97125	0.0	819.1
75:12	864.5	.97125	0.0	839.7

Kerosene - Type Jet Fuel
Table 42
Summary of Backcasts

Year / Demand	FEA Constrained Demand	Actual*
74:1	712.5	722.1
74:2	660.8	694.4
74:3	753.8	752.3
74:4	727.8	723.0
74:5	766.2	782.2
74:6	758.1	709.6
74:7	755.1	814.3
74:8	774.5	792.2
74:9	709.1	846.3
74:10	752.5	782.5
74:11	738.1	737.9
74:12	762.5	834.7

*Actual consumption estimates have been derived from two data sources: (a) 74:1 to 74:10 from Bureau of Mines; (b) 74:11 to 74:12, from FEA Weekly Statistical Bulletin.

FIGURE 10



4. Backcast Comparison

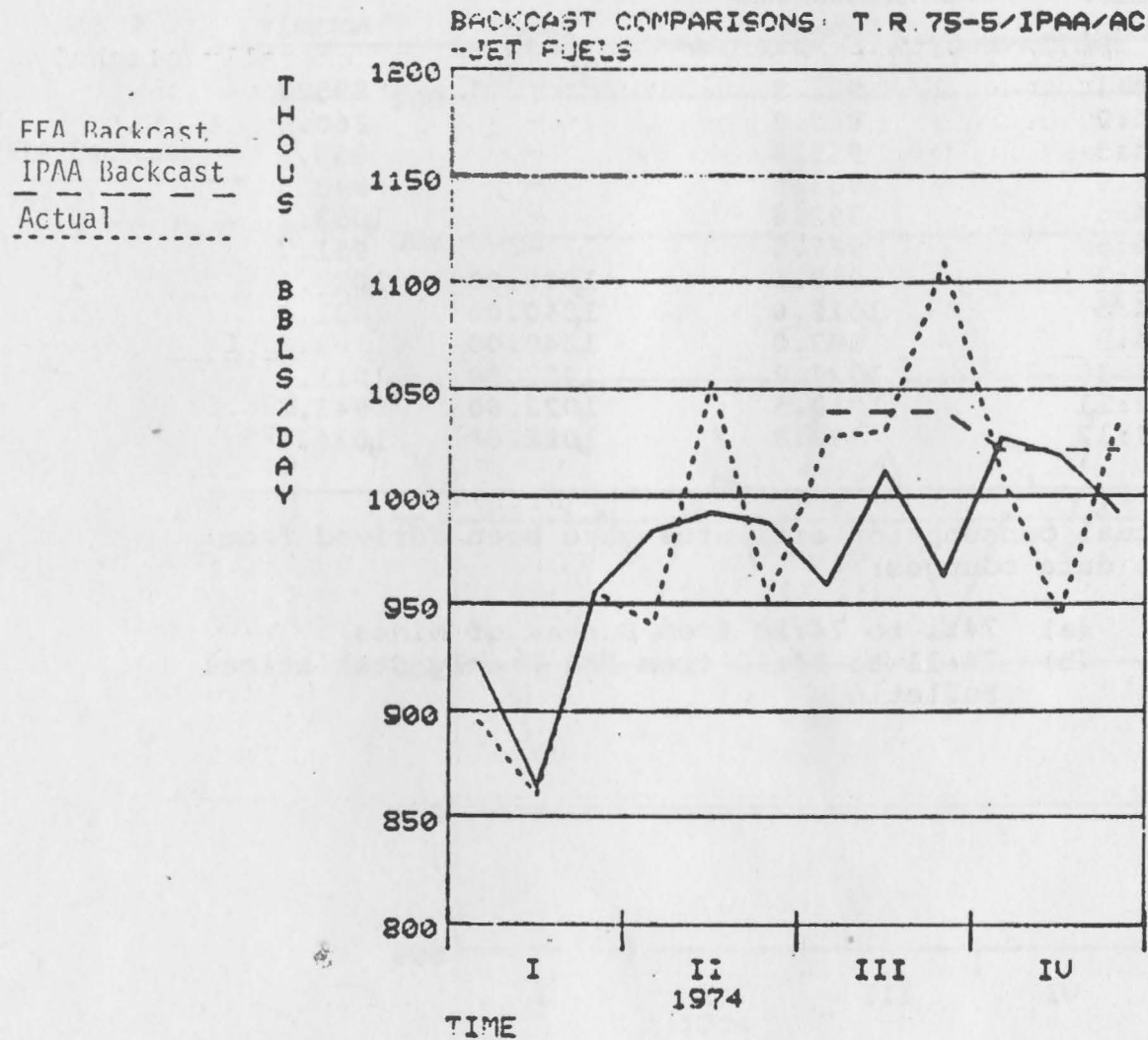
Table 43
Demand for Total Jet Fuel

Year / Month	FEA Constrained Demand	IPAA	Actual*
74:1	922.9	-	895.2
74:2	863.8	-	860.0
74:3	955.4	-	955.7
74:4	983.6	-	940.5
74:5	992.4	-	1053.1
74:6	987.5	-	951.7
74:7	958.6	1040.00	1028.1
74:8	1012.0	1040.00	1031.0
74:9	963.0	1040.00	1109.3
74:10	1027.7	1022.00	1011.2
74:11	1019.5	1022.00	943.5
74:12	992.8	1022.00	1034.2

*Actual consumption estimates have been derived from two data sources:

- (a) 74:1 to 74:10 from Bureau of Mines
- (b) 74:11 to 74:12 from FEA Weekly Statistical Bulletin

FIGURE 11



5. Forecast Comparison

FEA's forecast demand for jet fuels tends to be a bit higher than IPAA's. On the average, this difference is 29,900 barrels per day and amounts to 2.9 percent of FEA's forecast for jet fuels.

FEA's forecast demand for jet fuels is generally slightly higher than DRI's. On the average, this difference is 54,800 barrels per day and amounts to 5.2 percent of FEA's forecast for jet fuel demand.

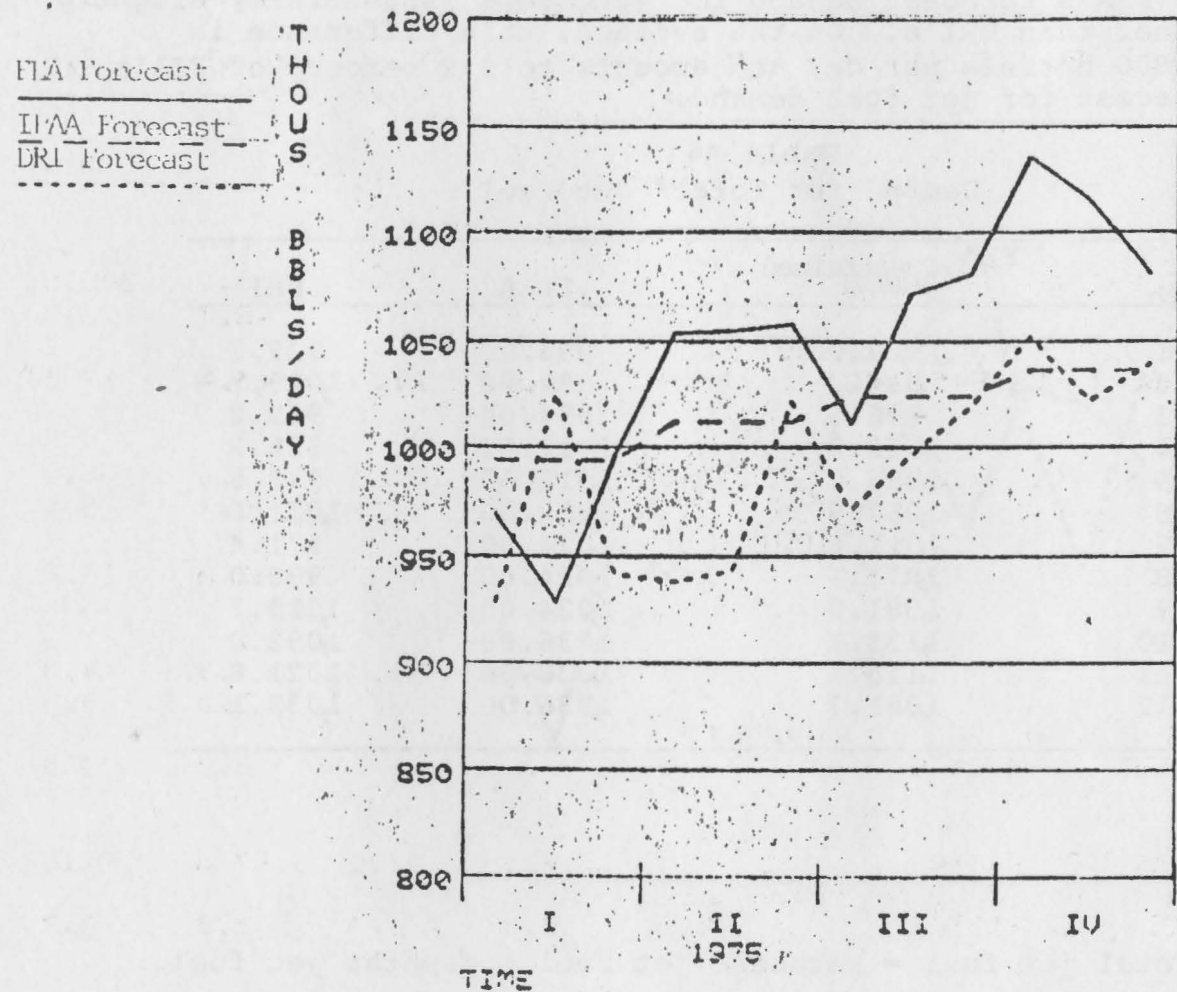
Table 44
Demand for Total* Jet Fuel

Year / Month	FEA Constrained Demand	IPAA	DRI
75:1	969.0	994.00	928.5
75:2	928.3	994.00	1,025.7
75:3	996.6	994.00	942.0
75:4	1,053.8	1,012.00	938.2
75:5	1,055.0	1,012.00	943.5
75:6	1,057.9	1,012.00	1,021.6
75:7	1,011.6	1,024.00	971.4
75:8	1,071.6	1,024.00	996.0
75:9	1,081.0	1,024.00	1,019.1
75:10	1,135.4	1,036.00	1,052.0
75:11	1,115.1	1,036.00	1,021.8
75:12	1,081.7	1,036.00	1,039.1

* Total jet fuel = kerosene jet fuel + naphtha jet fuel.

FIGURE 12

FORECAST COMPARISONS: Jet Fuel



KEROSENE JET FUEL ANALYSIS
OVER FORECAST INTERVAL

6.

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:1	75:2	75:3	75:4	75:
KEROSENE JET FUEL DEMAND	753.5	719.3	788.0	787.5	818.6
CHANGE	-9.1	-34.1	68.7	-0.5	31.1

INDEPENDENT VARIABLES

EXPRESS & FREIGHT TON-MILES	179.8	177.4	196.1	193.7	205.5
CHANGE	-12.8	-2.4	18.7	-2.3	11.7
CHANGE IN JETK DEMAND AT RIBUTABLE TO CHANGE IN QE&F451DNS	-18.9	-3.5	27.6	-3.4	17.3

REVENUE PASSENGER MILES	147.6	138.7	150.5	150.4	154.4
CHANGE	2.4	-8.9	11.8	-0.1	3.9
CHANGE IN JETK DEMAND AT RIBUTABLE TO CHANGE IN QMLS451DNS	8.4	-30.7	40.9	-0.3	15.6

EXPORTS	1.0	1.0	1.0	4.0	4.0
CHANGE	1.0	0.0	0.0	3.0	0.0
CHANGE IN JETK DEMAND AT RIBUTABLE TO CHANGE IN EXPORTS	1.0	0.0	0.0	3.0	0.0

PRICE REDUCTION FACTOR	0.9713	0.9703	0.9706	0.9708	0.9710
CHANGE IN JETK DEMAND AT RIBUTABLE TO PRICE ADJ. FACTORS	0.5	0.	0.2	0.2	0.2

CHANGE IN JETK DEMAND AT RIBUTABLE TO ADJ FACTORS	0.0	0.0	0.0	0.0	0.0
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CHANGE IN JETK DEMAND AT RIBUTABLE TO OTHER FACTORS	-0.0	-0.0	-0.0	-0.0	-0.0
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KEROSINE JET FUEL ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:6	75:7	75:8	75:9	75:10
KEROSINE JET FUEL DEMAND	817.4	797.7	821.7	813.7	845.6
CHANGE	-1.1	-19.7	23.9	-8.0	31.9

INDEPENDENT VARIABLES

EXPRESS & FREIGHT TON-MILES	201.2	190.6	201.4	200.6	213.5
CHANGE	-4.2	-10.6	10.8	-0.8	10.9
CHANGE IN JETK DEMAND ATTRIBUTABLE TO CHANGE IN Q&F451DNS	-6.3	-15.7	16.0	-1.2	16.2
REVENUE PASSENGER MILES	157.8	155.8	158.1	156.1	160.7
CHANGE	1.4	-0.9	2.3	-1.9	4.6
CHANGE IN JETK DEMAND ATTRIBUTABLE TO CHANGE IN QMLS451DNS	5.0	-0.1	8.0	-6.7	15.8
EXPORTS	4.0	0.0	0.0	0.0	0.0
CHANGE	0.0	-4.0	0.0	0.0	0.0
CHANGE IN JETK DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	-4.0	0.0	0.0	0.0
PRICE REDUCTION FACTOR	0.9712	0.9713	0.9712	0.9712	0.9712
CHANGE IN JETK DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	0.1	0.1	-0.0	0.0	0.0
CHANGE IN JETK DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0	0.0	0.0
CHANGE IN JETK DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	-0.0	0.0	-0.0	0.0

KEROSINE JET FUEL ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:11	75:12
KEROSINE JET FUEL DEMAND	819.1	839.7
CHANGE	-26.6	20.6

INDEPENDENT VARIABLES

EXPRESS & FREIGHT TON-MILES	203.5	204.3
CHANGE	-8.1	0.8
CHANGE IN JETK DEMAND ATTRIBUTABLE TO CHANGE IN Q&F451DNS	-11.9	1.2
REVENUE PASSENGER MILES	156.5	162.1
CHANGE	-4.2	5.6
CHANGE IN JETK DEMAND ATTRIBUTABLE TO CHANGE IN QMLS451DNS	-14.6	19.4
EXPORTS	0.0	0.0
CHANGE	0.0	0.0
CHANGE IN JETK DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0
PRICE REDUCTION FACTOR	0.9712	0.9712
CHANGE IN JETK DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	0.0	0.0
CHANGE IN JETK DEMAND ATTRIBUTABLE TO ADJ. FACTORS	0.0	0.0
CHANGE IN JETK DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	0.0

G. Naphtha - Type Jet Fuel

1. Definition

A fuel in the heavy naphtha boiling range with an average gravity of 52.8 API and 10 percent to 90 percent distillation temperatures of 210 F to 420 F and meeting Military Specifications MIL-F-5624 and MIL-T-5624G. Used for turbojet and turboprop aircraft engines, primarily by the military. Includes JP-4. Excludes ramjet and petroleum rocket fuels which should be reported with "other finished products."

2. Demand Comparisons

Table 45
Naphtha Type Jet Fuel
(thousands of barrels per day)

Year	Base Case	Policy Option Case	Difference	Percent Difference
75:1	215.5	215.5	0.0	0.0
75:2	209.0	208.8	-.2	-0.1
75:3	208.6	208.0	-.6	-0.3
75:4	266.3	264.8	-1.6	-0.6
75:5	236.4	233.5	-2.9	-1.2
75:6	240.5	236.3	-4.2	-1.7
75:7	213.9	209.3	-4.6	-2.1
75:8	249.9	244.3	-5.6	-2.3
75:9	267.3	261.0	-6.3	-2.4
75:10	289.8	282.6	-7.2	-2.5
75:11	296.0	288.4	-7.6	-2.6
75:12	242.0	235.6	-6.4	-2.7

National Supply and Demand Balance:
Naphtha Type Jet Fuel, Base Case

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	4.1	21.7	67.3	9.1	67.2	169.5
% YIELD	.3	.7	1.4	2.1	3.6	1.5
IMPORTS	39.4				9.4	48.8
SHIPMENTS	4.0		13.9	2.6		20.5
RECEIPTS	10.1	9.5			.9	20.5
FROM INV.	-3.9	-.6	-20.8	-.4	6.7	-19.2
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SUPPLY	45.6	30.5	32.6	6.1	84.2	199.1
DEMAND	47.9	34.8	36.0	6.1	84.2	209.0
SHORT	2.3	4.2	3.4			9.9
% DEMAND	4.8	12.2	9.4			4.7
OPEN MMB	.3	1.6	1.8	.3	1.6	5.6
CLOSE MMR	.4	1.7	2.4	.3	1.4	6.1

-TO-

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
PAD 1			10.1			
PAD 2	4.0		3.1	2.4		
PAD 5			.7	.2		

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	4.3	26.3	63.3	11.7	64.2	169.9
% YIELD	.3	.8	1.3	2.7	3.3	1.4
IMPORTS	39.4				12.6	52.0
SHIPMENTS	4.0		20.0	2.6		26.6
RECEIPTS	16.2	9.5			.9	26.6
FROM INV.	-.4	-3.9	-7.2	-2.9	-8.2	-22.8
<hr/>						
SUPPLY	55.4	31.9	36.1	6.1	69.5	198.9
DEMAND	58.6	36.7	38.1	6.1	69.5	209.0
SHORT	3.2	4.8	2.1			10.1
% DEMAND	5.5	13.0	5.5			4.8
OPEN MMB	.4	1.7	2.4	.3	1.4	6.1
CLOSE MMR	.4	1.8	2.6	.4	1.7	6.8

-TO-

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
PAD 1			16.2			
PAD 2	4.0		3.1	2.4		
PAD 5			.7	.2		

(BASE)

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	4.4	29.7	63.0	9.9	59.1	166.1
% YIELD	.3	.9	1.2	2.2	3.0	1.4
IMPORTS	44.6				15.9	60.6
SHIPMENTS	4.0		21.8	2.6		28.4
RECEIPTS	18.0	9.5			.9	28.4
FROM INV.	.2	4.7	17.7	-1.1	6.3	27.7
<hr/>						
SUPPLY	63.2	43.9	58.9	6.1	82.2	254.4
DEMAND	66.4	49.2	62.0	6.1	82.2	266.0
SHORT	3.2	5.3	3.1			11.6
% DEMAND	4.8	10.8	5.0			4.4
OPEN MMB	.4	1.8	2.6	.4	1.7	6.8
CLOSE MMB	.4	1.6	2.1	.4	1.5	6.0

-TO-

PAD 1		18.0			
PAD 2	4.0	3.1	2.4		
PAD 5		.7	.2		

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	4.6	45.7	57.1	10.2	60.9	178.5
% YIELD	.3	1.3	1.1	2.2	3.0	1.4
IMPORTS	44.6				17.3	61.9
SHIPMENTS	4.0	.7	15.3	2.6		22.6
RECEIPTS	14.6	6.4	.7		.9	22.6
FROM INV.	3.2	-4.6	-2.1	-.6	-.4	-4.7
<hr/>						
SUPPLY	62.9	46.7	40.4	6.9	78.8	235.7
DEMAND	63.2	46.7	40.4	6.9	78.8	236.0
SHORT	.3					.3
% DEMAND	.4					.1
OPEN MMB	.4	1.6	2.1	.4	1.5	6.0
CLOSE MMB	.3	1.8	2.1	.4	1.5	6.2

-TO-

PAD 1			14.6		
PAD 2	4.0			2.4	
PAD 3		.7			
PAD 5			.7	.2	

(BASE)

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	4.7	49.9	58.4	10.4	62.4	185.9
% YIELD	.3	1.4	1.1	2.2	3.0	1.4
IMPORTS	34.1				13.0	47.1
SHIPMENTS		4.5	29.4	2.1		36.0
RECEIPTS	30.6	1.9	2.6		.9	36.0
FROM INV.	2.6	-.1	5.6	1.0	-.9	8.0
<hr/>						
SUPPLY	72.0	47.2	37.2	9.3	75.3	241.0
DEMAND	72.0	47.2	37.2	9.3	75.3	241.0
SHORT						
OPEN MMB	.3	1.8	2.1	.4	1.5	6.2
CLOSE MMB	.2	1.8	2.0	.4	1.5	5.9

-TO-

PAD 1		1.9	28.7		
PAD 2				1.9	
PAD 3		2.6			
PAD 5			.7	.2	

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	4.6	44.6	97.7	10.2	78.4	235.4
% YIELD	.3	1.3	1.9	2.2	3.9	1.9
IMPORTS	44.1				5.5	49.6
SHIPMENTS	4.0		55.8	2.1		61.9
RECEIPTS	52.0	9.0			.9	61.9
FROM INV.	-24.1	-6.3	-.4	-.5	-10.0	-41.5
<hr/>						
SUPPLY	72.5	47.3	41.5	7.4	74.7	243.4
DEMAND	72.5	47.3	41.5	7.4	74.7	243.4
SHORT						
OPEN MMB	.2	1.8	2.0	.4	1.5	5.9
CLOSE MMB	2.5	2.4	2.0	.5	2.5	9.7

-TO-

PAD 1			52.0		
PAD 2	4.0		3.1	1.9	
PAD 5			.7	.2	

(BASE)

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	4.4	30.1	86.8	9.6	74.4	205.3
% YIELD	.3	.9	1.7	2.1	3.7	1.7
IMPORTS	36.2				13.8	50.0
SHIPMENTS	3.9		18.5	1.8		24.3
RECEIPTS	14.7	8.6			.9	24.3
FROM INV.	22.3	8.5	-16.7	-.9	7.2	20.4
	-----	-----	-----	-----	-----	-----
SUPPLY	73.8	47.3	51.5	6.9	96.3	275.8
DEMAND	73.8	47.3	51.5	6.9	96.3	275.8
SHORT						
OPEN MMB	2.5	2.4	2.0	.5	2.5	9.7
CLOSE MMB	.4	1.6	3.6	.5	1.8	7.9
-TO-						
PAD 1			14.7			
PAD 2	3.9		3.1	1.6		
PAD 5			.7	.2		

3. The Demand Function

The forecast of the monthly domestic demand for naphtha-based jet fuel is based on the following equation:

$$DMD291JETNPNS = DMD291JETNPNS (-12) * (1.05)$$

where:

DMD291JETNPNS ≡ domestic monthly total demand for jet fuel - naphtha type. It was assumed to increase by 5 percent over last year, month by month.

To obtain the constrained demand figures, the following equation is used:

$$\text{CONSTRAINED DEMAND} = (\text{DMD291JETNPNS} * \text{PENAPJET}) + \text{EXP NAPJET}$$

where:

PENAPJET ≡ the reduction factor by which naphtha-type jet fuel demand is reduced as a result of higher prices.

EXP NAPJET ≡ exports of naphtha fuel.

Table 46/1
Naphtha Jet

Year/ Month	DMD291JETNPNS	PENAPJET	EXP NAPJET	Constrained Demand
74:1	205.7	.99405	6.0	210.4
74:2	199.2	.98917	6.0	203.0
74:3	198.8	.98375	6.0	201.6
74:4	260.3	.97899	1.0	255.8
74:5	230.9	.97521	1.0	226.2
74:6	234.9	.97224	1.0	229.4
74:7	207.8	.97004	2.0	203.5
74:8	243.1	.96874	2.0	237.5
74:9	260.2	.96821	2.0	253.9
74:10	282.2	.96818	2.0	275.2
74:11	288.3	.96889	2.0	281.4
74:12	235.4	.96967	2.0	230.2
75:1	215.9	.97026	6.0	215.5
75:2	209.2	.97033	6.0	209.0
75:3	208.7	.97059	6.0	208.6
75:4	273.3	.97083	1.0	266.3
75:5	242.5	.97100	1.0	236.4
75:6	246.6	.97116	1.0	240.5
75:7	218.2	.97127	2.0	213.9
75:8	255.2	.97125	2.0	249.9
75:9	273.2	.97125	2.0	267.3
75:10	296.3	.97125	2.0	289.8
75:11	302.8	.97125	2.0	296.0
75:12	247.1	.97125	2.0	242.0

4. Naphtha - Type Jet Fuel ** Table 47/1

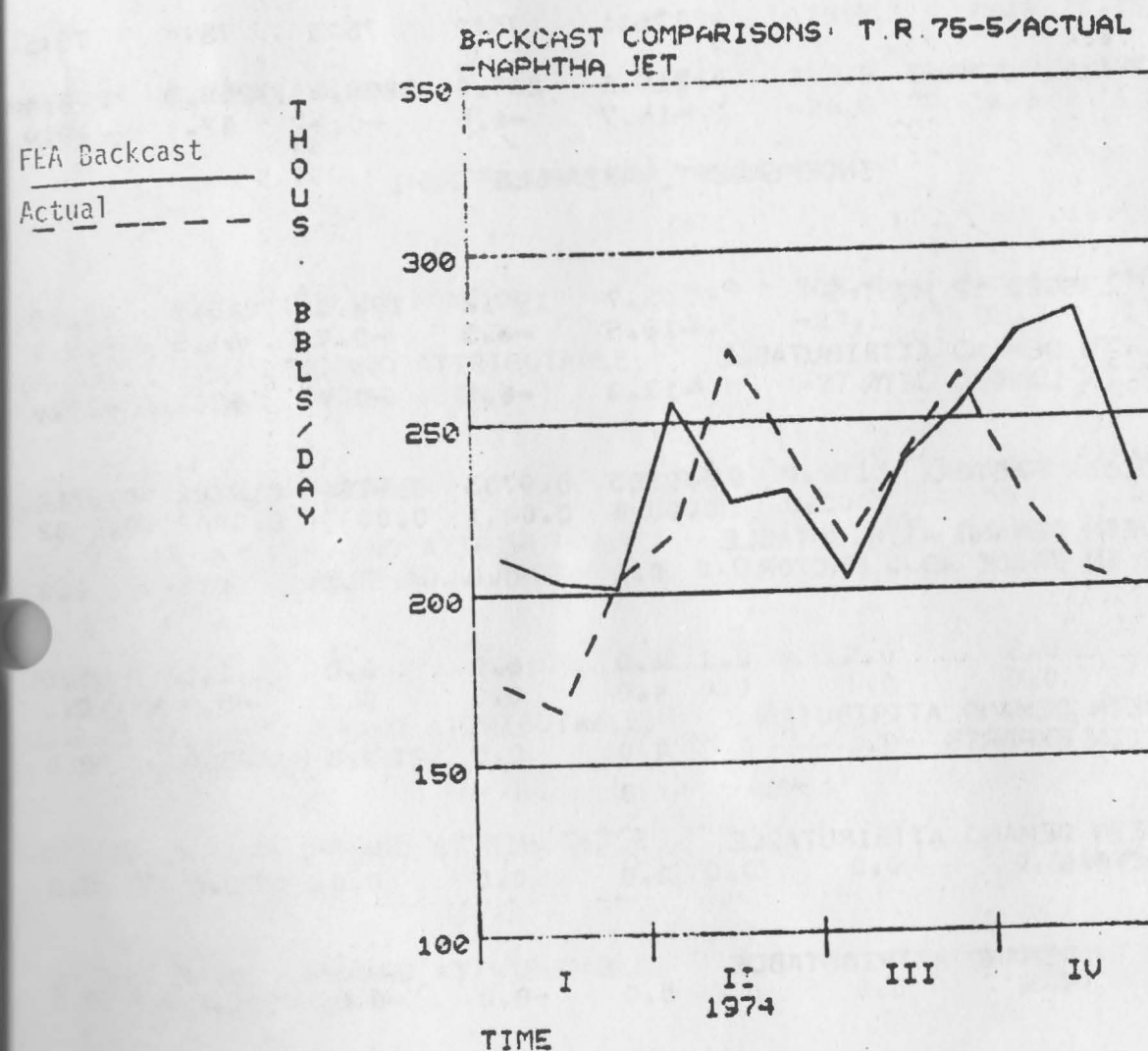
Summary of Backcasts

1974/ Month	FEA Constrained Demand	Actual*
74:1	210.4	173.1
74:2	203.0	165.6
74:3	201.6	203.4
74:4	255.8	217.6
74:5	226.2	270.9
74:6	229.4	242.1
74:7	203.5	213.8
74:8	237.5	238.8
74:9	253.9	263.0
74:10	275.2	228.7
74:11	281.4	205.7
74:12	230.2	199.5

* Actual values derived from two data sources: (a) 74:1 to 74:10 from Bureau of Mines, (b) 74:11 to 74:10 from FEA Weekly Statistical Bulletin.

**Note - backcast and forecast comparisons for total jet fuel (kerosene + naphtha) appear at the end of kerosene jet section of this report.

FIGURE 13



NAPHTHA JET FUEL ANALYSIS
OVER FORECAST INTERVAL

5. EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:1	75:2	75:3	75:4	75:5
NAPHTHA JET FUEL DEMAND	215.5	209.0	208.6	266.3	236.4
CHANGE	-14.7	-6.6	-0.4	57.7	-29.9

INDEPENDENT VARIABLES

NAPHTHA JET LAGGED 12 MONTHS	205.7	199.2	198.8	260.3	230.9
CHANGE	-18.5	-6.5	-0.4	61.5	-29.4
CHANGE IN JETN DEMAND ATTRIBUTABLE TO CHANGE IN LAGGED JETN	-18.8	-6.6	-0.4	62.7	-29.9

PRICE REDUCTION FACTOR	0.9703	0.9703	0.9706	0.9708	0.9710
CHANGE	0.0006	0.0001	0.0003	0.0002	0.0002
CHANGE IN JETN DEMAND ATTRIBUTABLE TO CHANGE IN PRICE ADJ. FACTOR	0.1	0.0	0.1	0.1	0.0

EXPORTS	6.0	6.0	6.0	1.0	1.0
CHANGE	4.0	0.0	0.0	-5.0	0.0
CHANGE IN JETN DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	4.0	0.0	0.0	-5.0	0.0

CHANGE IN JETN DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0	0.0	0.0
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CHANGE IN JETN DEMAND ATTRIBUTABLE TO OTHER FACTORS	0.0	-0.0	-0.0	-0.0	0.0
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NAPHTHA JET FUEL ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:6	75:7	75:8	75:9	75:10
NAPHTHA JET FUEL DEMAND	240.5	213.9	249.9	267.3	289.8
CHANGE	4.1	-26.6	36.0	17.4	22.5

INDEPENDENT VARIABLES

NAPHTHA JET LAGGED 12 MONTHS	234.9	207.8	243.1	260.2	282.2
CHANGE	4.0	-27.1	35.3	17.1	22.0
CHANGE IN JETN DEMAND ATTRIBUTABLE TO CHANGE IN LAGGED JETN	4.0	-27.7	36.0	17.4	22.5

PRICE REDUCTION FACTOR	0.9712	0.9713	0.9712	0.9712	0.9712
CHANGE	0.0002	0.0001	-0.0001	0.0000	0.0000
CHANGE IN JETN DEMAND ATTRIBUTABLE TO CHANGE IN PRICE ADJ. FACTOR	0.0	0.0	-0.0	0.0	0.0

EXPORTS	1.0	2.0	2.0	2.0	2.0
CHANGE	0.0	1.0	0.0	0.0	0.0
CHANGE IN JETN DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	1.0	0.0	0.0	0.0

CHANGE IN JETN DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0	0.0	0.0
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CHANGE IN JETN DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	0.0	0.0	-0.0	0.0
--	------	-----	-----	------	-----

NAPHTHA JET FUEL ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:11	75:12
NAPHTHA JET FUEL DEMAND CHANGE	296.0 6.3	242.0 -54.0

INDEPENDENT VARIABLES

NAPHTHA JET LAGGED 12 MONTHS CHANGE	288.3 6.2	235.4 -53.0
CHANGE IN JETN DEMAND ATTRIBUTABLE TO CHANGE IN LAGGED JETN	6.3	-54.0
PRICE REDUCTION FACTOR CHANGE	0.9712 0.0000	0.9712 0.0000
CHANGE IN JETN DEMAND ATTRIBUTABLE TO CHANGE IN PRICE ADJ. FACTOR	0.0	0.0
EXPORTS CHANGE	2.0 0.0	2.0 0.0
CHANGE IN JETN DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0
CHANGE IN JETN DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0
CHANGE IN JETN DEMAND ATTRIBUTABLE TO OTHER FACTORS	0.0	-0.0

H. Petrochemical Feedstocks

1. Definition

Includes all refinery streams which are sold to or directed to chemical or rubber manufacturing operations for further processing, less the amount of such streams returned to the source refinery. Excludes finished petrochemical products, such as marketable benzene, toluene, cumene, etc. Demand for ethane and liquefied gases used for petrochemical feedstocks are excluded.

2. Demand Comparisons

Table 48
Petrochemical Feedstocks

Year/ Month	Base Case	Policy Option Case	Difference	Percent Difference
75:1	334.6	334.6	0.0	0.0
75:2	331.3	330.7	-0.5	-0.2
75:3	332.2	330.4	-1.8	-0.5
75:4	337.0	333.3	-3.8	-1.1
75:5	337.0	329.1	-7.9	-2.4
75:6	338.0	327.6	-11.3	-3.3
75:7	335.2	321.2	-14.0	-4.2
75:8	336.8	322.0	-14.8	-4.4
75:9	338.7	323.1	-15.6	-4.6
75:10	348.1	331.7	-16.4	-4.7
75:11	349.8	332.6	-17.2	-4.9
75:12	351.0	333.3	-17.8	-5.1

National Supply and Demand Balance:
Petrochemical Feedstocks, Base Case

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	17.9	27.9	264.1	.9	14.9	325.7
% YIELD	1.3	.9	5.5	.2	.8	2.8
IMPORTS	.4		2.7			3.1
SHIPMENTS			18.1			18.1
RECEIPTS	8.8	8.5			.8	18.1
FROM INV.	-3.2	-.8	1.4	-.2	.7	-2.2
SUPPLY	23.8	35.5	250.2	.6	16.5	326.6
DEMAND	23.8	35.5	250.2	.6	20.9	331.0
SHORT					4.4	4.4
% DEMAND					21.2	1.3
OPEN MMB	.0	.4	1.9		.6	2.9
CLOSE MMB	.1	.4	1.9	.0	.6	3.0
-TO-						
PAD 1			8.8			
PAD 2			8.5			
PAD 5			.8			

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	27.2	29.1	258.5	.9	18.6	334.3
% YIELD	1.9	.9	5.2	.2	1.0	2.8
IMPORTS			2.9			2.9
SHIPMENTS			11.8			11.8
RECEIPTS	2.7	8.3			.8	11.8
FROM INV.	-2.7	.2	-1.1	.0	-1.4	-5.1
SUPPLY	27.1	37.5	248.5	.9	18.0	332.0
DEMAND	27.1	37.5	248.5	.9	18.0	332.0
SHORT						
OPEN MMB	.1	.4	1.9	.0	.6	3.0
CLOSE MMB	.2	.4	1.9	.0	.6	3.1
-TO-						
PAD 1			2.7			
PAD 2			8.3			
PAD 5			.8			

(BASE)

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	27.7	29.7	264.7	.9	27.2	350.2
% YIELD	1.9	.9	5.2	.2	1.4	2.9
IMPORTS			.3			.3
SHIPMENTS			12.7			12.7
RECEIPTS	2.7	9.2			.8	12.7
FROM INV.	-8.7	-1.5	-1.7	-.1	-1.2	-13.4
SUPPLY	21.7	37.3	250.5	.7	26.7	337.0
DEMAND	21.7	37.3	250.5	.7	26.7	337.0
SHORT						
OPEN MMB	.2	.4	1.9	.0	.6	3.1
CLOSE MMB	.5	.5	2.0	.0	.6	3.6
-TO-						
PAD 1			2.7			
PAD 2			9.2			
PAD 5			.8			

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	28.8	31.6	269.8	.9	28.4	359.6
% YIELD	1.9	.9	5.2	.2	1.4	2.8
IMPORTS						
SHIPMENTS			10.7			10.7
RECEIPTS	2.7	7.2			.8	10.7
FROM INV.	-6.2	-.6	-10.4	-.3	-4.8	-22.5
SUPPLY	25.2	38.2	248.6	.6	24.4	337.0
DEMAND	25.2	38.2	248.6	.6	24.4	337.0
SHORT						
OPEN MMB	.5	.5	2.0	.0	.6	3.6
CLOSE MMB	.7	.5	2.3	.0	.8	4.3
-TO-						
PAD 1			2.7			
PAD 2			7.2			
PAD 5			.8			

(BASE)

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	29.5	43.5	276.2	.9	29.1	379.3
% YIELD	1.9	1.2	5.2	.2	1.4	2.9
IMPORTS						
SHIPMENTS			4.5			4.5
RECEIPTS	2.7	1.0			.8	4.5
FROM INV.	-7.7	-4.1	-25.7	-.2	-2.4	-40.3
SUPPLY	24.4	40.4	246.0	.7	27.5	339.0
DEMAND	24.4	40.4	246.0	.7	27.5	339.0
SHORT						
OPEN MMB	.7	.5	2.3	.0	.8	4.3
CLOSE MMB	.9	.6	3.1	.0	.9	5.5

-TO-

PAD 1	
PAD 2	2.7
PAD 5	1.0
	.8

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	28.8	44.6	275.2	.9	24.2	373.8
% YIELD	1.9	1.3	5.3	.2	1.2	3.0
IMPORTS						
SHIPMENTS			3.7			3.7
RECEIPTS	2.7	1.0				3.7
FROM INV.	-6.1	-6.1	-25.4	-.1	1.1	-36.8
SUPPLY	25.4	39.4	246.0	.8	25.3	337.0
DEMAND	25.4	39.4	246.0	.8	25.3	337.0
SHORT						
OPEN MMB	.9	.6	3.1	.0	.9	5.5
CLOSE MMB	1.5	1.2	5.4	.0	.8	8.9

-TO-

PAD 1	
PAD 2	2.7
	1.0

(BASE)

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	28.2	30.1	266.1	.7	22.3	347.4
% YIELD	1.9	.9	5.3	.2	1.1	2.8
IMPORTS						
SHIPMENTS			10.9			10.9
RECEIPTS	2.7	8.2				10.9
FROM INV.	-7.0	2.3	6.1	.3	.7	2.3
SUPPLY	23.8	40.6	261.3	1.0	23.0	349.7
DEMAND	23.8	40.6	261.3	1.0	23.0	349.7
SHORT						
OPEN MMB	1.5	1.2	5.4	.0	.8	8.9
CLOSE MMB	2.1	1.0	4.9	.0	.7	8.6

-TO-

PAD 1	
PAD 2	2.7
	8.2

3. The Demand Function

The forecast of the monthly domestic demand for petrochemical feedstocks is based on the following equation:

$$\begin{aligned} \text{DMD291PETRONS} = & -196.832 + .823481 * \text{YD58M} \\ & (-5.98531) \quad (8.33957) \\ & + .154298 * \text{DMD291PETRONS} (-12) \\ & (1.76451) \end{aligned}$$

$\bar{R}^2 = .8898$; $DW = 1.7948$; $SE = 16.3177$; where DMD291PETRONS \equiv domestic total demand for petrochemical feedstocks, thousands of barrels per day, not seasonally adjusted; YD58M \equiv personal disposable income in 1958 dollars.

To obtain the constrained demand figures, the following equation is used:

$$\begin{aligned} \text{CONSTRAINED DEMAND} = & (\text{DMD291PETRONS} * \text{PEPETCHEM}) \\ & + \text{EXPPETCHEM} \end{aligned}$$

Note: Estimation Interval: 66:2 to 73:7.

where:

PEPETCHEM \equiv the reduction factor by which petrochemical feedstocks demand is reduced as a result of higher prices.

EXPPETCHEM \equiv exports of petrochemical feedstocks.

Table 49

Petrochemical Feedstocks

Year / Month	DMD291PETRONS	PEPETCHEM	EXPPETCHEM	Constrained Demand
74:1	364.6	.98813	11.0	371.3
74:2	359.2	.97846	11.0	362.5
74:3	356.9	.96777	11.0	356.4
74:4	359.4	.95842	13.0	357.5
74:5	351.0	.95104	13.0	346.8
74:6	353.9	.94525	13.0	347.6
74:7	354.6	.94097	8.0	341.7
74:8	357.2	.93847	8.0	343.2
74:9	355.4	.93744	8.0	341.2
74:10	354.1	.93738	15.0	347.9
74:11	351.3	.93874	15.0	344.8
74:12	349.0	.94026	15.0	343.1
75:1	343.7	.94141	11.0	334.6
75:2	340.2	.94153	11.0	331.3
75:3	341.0	.94204	11.0	332.2
75:4	343.8	.94250	13.0	337.0
75:5	343.7	.94284	13.0	337.0
75:6	345.5	.94316	13.0	338.9
75:7	346.8	.94336	8.0	335.2
75:8	348.6	.94332	8.0	336.8
75:9	350.6	.94332	8.0	338.7
75:10	353.1	.94332	15.0	348.1
75:11	354.9	.94332	15.0	349.8
75:12	356.2	.94332	15.0	351.0

4. Backcast Comparison

Table 50

Backcast Comparison

Year / Month	FEA Constrained Demand	Actual *
74:1	371.3	347.2
74:2	362.5	356.6
74:3	356.4	320.9
74:4	357.5	299.4
74:5	346.8	312.4
74:6	347.6	347.3
74:7	341.7	402.6
74:8	343.2	403.7
74:9	341.2	390.2
74:10	347.0	386.9
74:11	344.8	--
74:12	343.1	--

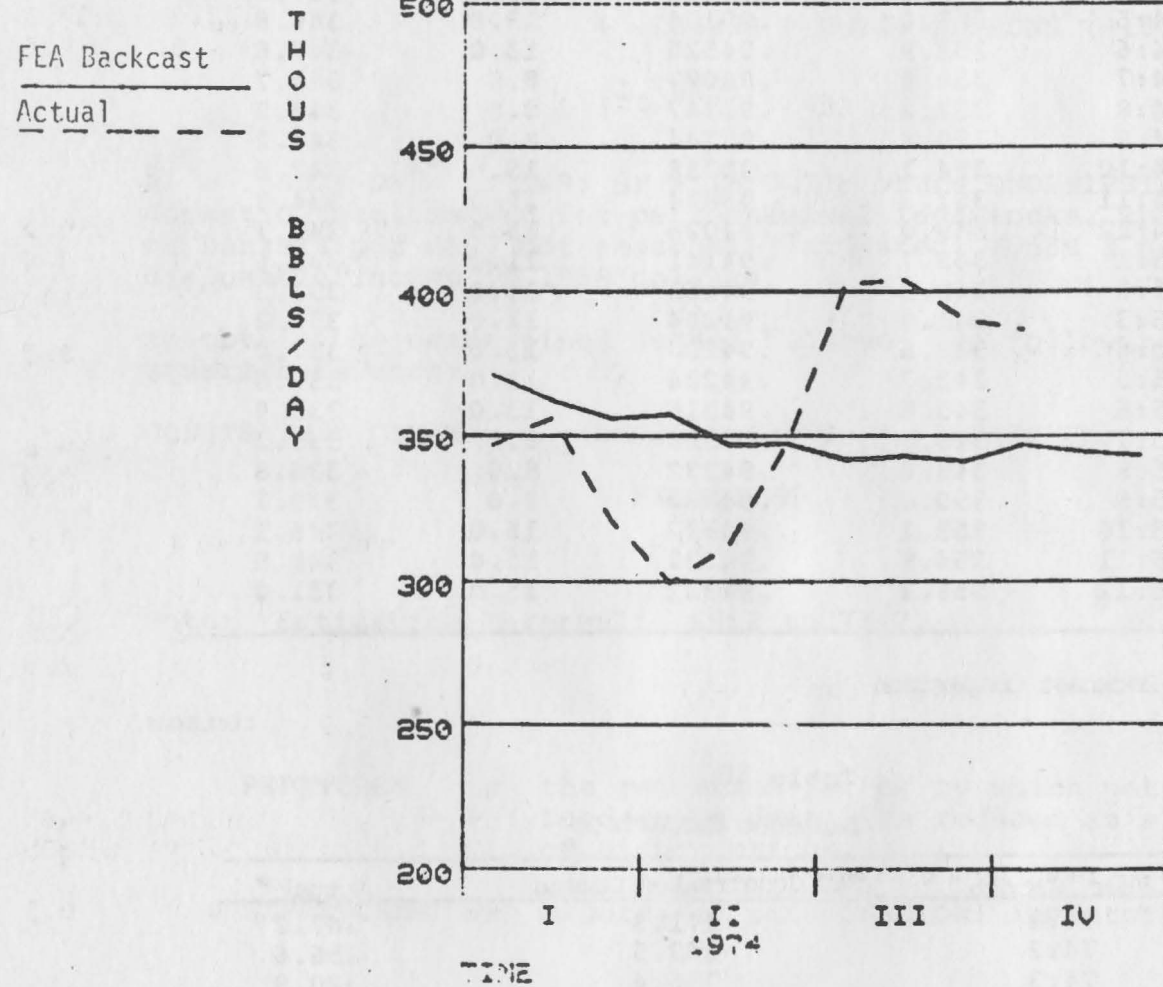
* Bureau of Mines numbers

PETROCHEMICAL FEEDSTOCKS ANALYSIS
OVER FORECAST INTERVAL

5.

EVALUATION OF PERIOD-TO-PERIOD CHANGES

BACKCAST COMPARISONS. T.R. 75-5/B.O.M.
-PCHEM.FSTKS.



	75:1	75:2	75:3	75:4
PCHEM.FSTKS. DEMAND	334,6	331,3	332,2	337,0
CHANGE	-8.6	-3.3	1.0	4.8
INDEPENDENT VARIABLES				
REAL DISPOSABLE PERSONAL INCOME	588.1	584.8	586.2	589.2
CHANGE	-5.2	-3.3	1.4	2.9
INCOME ELASTICITY	1.41	1.42	1.42	1.41
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	-4.0	-2.5	1.1	2.3
PCHEM.FSTKS. LAGGED 12 MONTHS	364,6	359,2	356,9	359,4
CHANGE	-6.4	-5.4	-2.3	2.5
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN PCHEM.FSTKS. LAG VARIABLE	-0.9	-0.8	-0.3	0.4
EXPORTS	11,0	11,0	11,0	13,0
CHANGE	-4.0	0.0	0.0	2.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	-4.0	0.0	0.0	2.0
PRICE REDUCTION FACTOR	0,9414	0,9415	0,9420	0,9425
CHANGE	0.0011	0.0001	0.0005	0.0005
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	0.4	0.0	0.2	0.2
ADD FACTOR	0.0	0.0	0.0	0.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0	0.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	-0.0	-0.0	-0.0

PETROCHEMICAL FEEDSTOCKS ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:5	75:6	75:7
PCHEM.FSTKS. DEMAND CHANGE	337.0 0.0	338.9 1.9	335.2 -3.7
INDEPENDENT VARIABLES			
REAL DISPOSABLE PERSONAL INCOME CHANGE	590.6 1.4	592.3 1.7	593.7 1.4
INCOME ELASTICITY	1.42	1.41	1.41
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	1.1	1.3	1.1
PCHEM.FSTKS. LAGGED 12 MONTHS CHANGE	351.0 -8.5	353.9 3.0	354.6 0.7
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN PCHEM.FSTKS. LAG VARIABLE	-1.2	0.4	0.0
EXPORTS CHANGE	13.0 0.0	13.0 0.0	8.0 -5.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0	-5.0
PRICE REDUCTION FACTOR CHANGE	0.9428 0.0003	0.9432 0.0003	0.9434 0.0002
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	0.1	0.1	0.1
ADD FACTOR CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0 0.0	0.0 0.0	0.0 0.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	-0.0	-0.0

PETROCHEMICAL FEEDSTOCKS ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:8	75:9	75:10
PCHEM.FSTKS. DEMAND CHANGE	336.8 1.7	338.7 1.9	348.1 9.4
INDEPENDENT VARIABLES			
REAL DISPOSABLE PERSONAL INCOME CHANGE	595.4 1.7	598.1 2.7	601.5 3.3
INCOME ELASTICITY	1.41	1.41	1.40
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	1.3	2.1	2.6
PCHEM.FSTKS. LAGGED 12 MONTHS CHANGE	357.2 2.6	355.4 -1.8	354.1 -1.3
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN PCHEM.FSTKS. LAG VARIABLE	0.4	-0.3	-0.2
EXPORTS CHANGE	8.0 0.0	8.0 0.0	15.0 7.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0	7.0
PRICE REDUCTION FACTOR CHANGE	0.9433 -0.0000	0.9433 0.0000	0.9433 0.0000
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	-0.0	0.0	0.0
ADD FACTOR CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0 0.0	0.0 0.0	0.0 0.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO OTHER FACTORS	0.0	-0.0	0.0

PETROCHEMICAL FEEDSTOCKS ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:11	75:12
PCHEM.FSTKS. DEMAND	349.8	351.0
CHANGE	1.7	1.2

INDEPENDENT VARIABLES

REAL, DISPOSABLE PERSONAL INCOME	604.2	606.2
CHANGE	2.7	2.0
INCOME ELASTICITY	1.40	1.40
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	2.1	1.6
PCHEM.FSTKS. LAGGED 12 MONTHS	351.3	349.0
CHANGE	-2.8	-2.3
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN PCHEM.FSTKS. LAG VARIABLE	-0.4	-0.3
EXPORTS	15.0	15.0
CHANGE	0.0	0.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0
PRICE REDUCTION FACTOR	0.9433	0.9433
CHANGE	0.0000	0.0000
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	0.0	0.0
ADD FACTOR	0.0	0.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0
CHANGE IN PETCHEM DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	0.0

I. Liquefied Gases

1. Definition

The sum of liquefied petroleum gas (LPG) and liquefied refinery gas (LRG) for chemical and fuel use, includes liquefied refinery gases that were fractionated for refinery or still gases. Through compression and/or refrigeration they are retained in the liquid state and represent final products. Excludes still gases used for chemical or rubber manufacture, which are reported as petrochemical feedstocks and also excludes liquefied gases ready for blending to gasoline which are reported as gasoline.

2. Demand Comparisons

Table 51
Liquefied Gases

Year/ Month	Base Case	Policy Option Case	Difference	Percent Difference
75:1	1,723.	1,723.	0.0	0.0
75:2	1,616.	1,615.	-0.7	-0.1
75:3	1,342.	1,340.	-2.5	-0.2
75:4	1,168.	1,164.	-4.5	-0.4
75:5	1,089.	1,080.	-8.8	-0.8
75:6	972.	962.	-11.2	-1.2
75:7	948.	935.	-13.5	-1.4
75:8	1,040.	1,024.	-15.9	-1.5
75:9	1,085.	1,068.	-17.5	-1.6
75:10	1,273.	1,252.	-21.2	-1.7
75:11	1,466.	1,442.	-24.6	-1.7
75:12	1,671.	1,643.	-28.1	-1.7

National Supply and Demand Balance:
Liquified Gases, Base Case

(BASE)

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	45.4	65.2	143.1	6.8	42.9	303.4
% YIELD	3.3	2.1	3.0	1.6	2.3	2.6
BLEND	130.7	243.4	379.4	4.3	-2.1	755.6
IMPORTS		115.5	73.5	44.6	52.5	286.1
SHIPMENTS						
RECEIPTS						
FROM INV.	-32.0	-60.2	51.5	-10.4	-23.3	-74.6
	----	----	----	----	----	----
SUPPLY	144.1	363.8	647.5	45.3	69.9	1,270.6
DEMAND	144.1	381.0	963.1	54.0	73.8	1,616.0
SHORT		17.2	315.6	8.7	3.9	345.4
% DEMAND		4.5	32.8	16.1	5.3	21.4
OPEN MMB	3.7	22.8	42.7	.5	1.0	70.6
CLOSE MMB	4.6	24.5	41.3	.8	1.6	72.7

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	48.2	66.0	149.3	7.2	44.5	315.1
% YIELD	3.3	2.0	2.9	1.6	2.2	2.6
BLEND	82.3	44.1	529.3			655.7
IMPORTS		56.4	55.1	17.1	18.4	147.0
SHIPMENTS						
RECEIPTS						
FROM INV.	-52.1	38.8	-248.3	24.5	22.5	-214.7
	----	----	----	----	----	----
SUPPLY	78.4	205.2	485.4	48.8	85.3	903.1
DEMAND	78.4	211.2	729.7	57.5	91.2	1,168.0
SHORT		6.0	244.3	8.7	5.9	264.9
% DEMAND		2.8	33.5	15.1	6.4	22.7
OPEN MMB	5.6	26.0	41.5	1.3	1.9	76.3
CLOSE MMB	7.2	24.8	49.0	.5	1.3	82.7

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	47.2	65.9	144.9	6.9	41.4	306.3
% YIELD	3.3	2.0	2.9	1.6	2.1	2.6
BLEND	82.3	120.7	374.3	3.7	-5.2	575.9
IMPORTS		115.5	73.5	44.6	52.5	286.1
SHIPMENTS						
RECEIPTS						
FROM INV.	-33.7	-48.0	-7.5	-16.2	-9.9	-115.5
	----	----	----	----	----	----
SUPPLY	95.7	254.1	585.2	39.0	78.7	1,052.8
DEMAND	95.7	266.1	848.2	47.3	84.6	1,342.0
SHORT		12.0	263.0	8.3	5.9	289.2
% DEMAND		4.5	31.0	17.6	7.0	21.6
OPEN MMB	4.6	24.5	41.3	.8	1.6	72.7
CLOSE MMB	5.6	26.0	41.5	1.3	1.9	76.3

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	50.1	75.7	155.6	7.4	46.7	335.6
% YIELD	3.3	2.2	3.0	1.6	2.3	2.7
BLEND	82.3	81.9	311.5	10.1	-2.5	483.2
IMPORTS		56.4	55.1	17.1	18.4	147.0
SHIPMENTS						
RECEIPTS						
FROM INV.	-77.4	-96.6	11.2	-.8	8.0	-155.6
	----	----	----	----	----	----
SUPPLY	54.9	117.4	533.5	33.7	70.5	810.1
DEMAND	54.9	123.4	796.5	39.5	74.6	1,089.0
SHORT		6.0	263.0	5.8	4.1	278.9
% DEMAND		4.9	33.0	14.7	5.5	25.6
OPEN MMB	7.2	24.8	49.0	.5	1.3	82.7
CLOSE MMB	9.6	27.8	48.6	.6	1.0	87.6

(BASE)

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	51.3	75.9	159.4	7.6	47.8	341.9
% YIELD	3.3	2.2	3.0	1.6	2.3	2.6
BLEND	82.3	82.5	413.6	10.1	-2.5	585.9
IMPORTS		56.4	55.1	17.1	18.4	147.0
SHIPMENTS						
RECEIPTS						
FROM INV.	-80.3	-110.7	-131.0	.7	-3.9	-325.4
	-----	-----	-----	-----	-----	-----
SUPPLY	53.2	104.0	497.0	35.4	59.7	749.4
DEMAND	53.2	110.0	707.4	41.2	61.2	973.0
SHORT		6.0	210.4	5.8	1.4	223.6
% DEMAND		5.5	29.7	14.1	2.4	23.0
OPEN MMB	9.6	27.8	48.6	.6	1.0	87.6
CLOSE MMB	12.0	31.1	52.5	.5	1.1	97.3

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	50.1	72.0	139.8	7.3	52.3	321.6
% YIELD	3.3	2.1	2.7	1.6	2.6	2.5
BLEND	50.9	95.3	503.1	10.1	-2.5	656.9
IMPORTS		49.9	80.1	17.1	17.1	164.1
SHIPMENTS						
RECEIPTS						
FROM INV.	-48.2	-75.6	-112.9	-1.1	-2.7	-240.7
	-----	-----	-----	-----	-----	-----
SUPPLY	52.8	141.6	610.0	33.3	64.2	901.9
DEMAND	52.8	153.6	715.7	37.4	64.2	1,023.7
SHORT		12.0	105.7	4.1		121.8
% DEMAND		7.8	14.8	11.0		11.9
OPEN MMB	12.0	31.1	52.5	.5	1.1	97.3
CLOSE MMB	16.4	38.1	62.9	.7	1.4	119.5

(BASE)

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	48.9	69.1	139.1	6.7	49.9	313.6
% YIELD	3.3	2.1	2.7	1.5	2.5	2.5
BLEND	82.0	77.5	480.8	14.8	-2.4	652.7
IMPORTS		89.2	56.4	26.3	41.1	213.0
SHIPMENTS						
RECEIPTS						
FROM INV.	-35.1	100.1	148.0	-3.2	-5.7	204.0
	-----	-----	-----	-----	-----	-----
SUPPLY	95.8	335.9	824.3	44.5	82.8	1,383.3
DEMAND	95.8	338.5	908.5	44.5	82.8	1,470.0
SHORT		2.6	84.2			86.7
% DEMAND		.8	9.3			5.9
OPEN MMB	16.4	38.1	62.9	.7	1.4	119.5
CLOSE MMB	19.6	28.9	49.3	.9	1.9	100.7

3. Demand Function

The forecasts of the monthly domestic demand for liquefied gases are based on the following equation:

$$\begin{aligned}
 \text{DMD291LIQGASNS} = & -36.5155 + .223997 * \text{DDNMWT} \\
 & (-.332674) \quad (4.04985) \\
 & +242.733 * \text{JFRB28} + .675262 \\
 & (2.64750) \quad (7.22957) \\
 & \text{DMD291LIQGASNS} (-12) - (\text{RHOLG}^{\text{K2}}) \\
 & \quad (5.35811) \\
 & * (\text{LGACT} - \text{LGSTAR})
 \end{aligned}$$

$\bar{R}^2 = .9275$; $\text{DW} = 2.0456$; $\text{SE} = 67.6574$; $\text{RHOLG} = .527692$;
 where $\text{DMD291LIQGASNS} \equiv$ domestic total demand for liquefied gases, thousands of barrels per day, not seasonally adjusted; $\text{DDNMWT} \equiv$ national monthly degree days; $\text{JFRB28} \equiv$ FRB production index of chemicals and products; $\text{DMD291LIQGASNS} (-12) \equiv$ domestic total demand for liquefied gases, lagged 12 months; $\text{LGACT} \equiv$ actual domestic monthly demand for liquefied gases in September 1973; $\text{LGSTAR} \equiv$ the forecast from the above equation omitting $(\text{RHOLG}^{\text{K2}}) * (\text{LGACT} - \text{LGSTAR})$ for September 1973; $\text{K2} = 4, 5, \dots, 30$ for August 1974 through March 1976, respectively.

DDNMWT is forecast as a 15-year average (1959 to 1973) of the historical values of DDNMWT .

To obtain the constrained demand figures, the following equation is used:

$$\begin{aligned}
 \text{CONSTRAINED DEMAND} = & (\text{DMD291LIQGASNS} * \text{PELGAS}) \\
 & + \text{EXPLGAS}
 \end{aligned}$$

$\text{PELGAS} \equiv$ the reduction factor by which liquefied gases demand is reduced as a result of higher prices

$\text{EXPLGAS} \equiv$ exports of liquefied gases.

NOTE: Estimation interval: 66:1 to 73:9

Table 52
Liquefied Gases

Year / Month	DMD291LIQGASNS	PELGAS	EXPLGAS	Constrained Demand
74:1	1,687.4	.96605	35.0	1,715.7
74:2	1,575.8	.99264	35.0	1,599.2
74:3	1,216.7	.98886	35.0	1,238.1
74:4	1,079.3	.98546	25.0	1,088.6
74:5	1,032.9	.98285	25.0	1,040.2
74:6	913.3	.98085	25.0	920.8
74:7	878.3	.97950	31.0	891.3
74:8	1,015.8	.97899	31.0	1,025.5
74:9	1,055.0	.97908	31.0	1,064.0
74:10	1,254.7	.97948	37.0	1,266.0
74:11	1,443.4	.98026	37.0	1,451.9
74:12	1,636.1	.98101	37.0	1,642.0
75:1	1,719.4	.98157	35.0	1,722.7
75:2	1,610.3	.98168	35.0	1,615.8
75:3	1,331.6	.98185	35.0	1,342.4
75:4	1,164.0	.98195	25.0	1,168.0
75:5	1,083.1	.98193	25.0	1,088.5
75:6	965.2	.98193	25.0	972.7
75:7	933.9	.98193	31.0	948.1
75:8	1,028.0	.98193	31.0	1,040.4
75:9	1,073.6	.98193	31.0	1,085.2
75:10	1,258.5	.98193	37.0	1,272.8
75:11	1,455.4	.98193	37.0	1,466.1
75:12	1,664.1	.98193	37.0	1,671.0

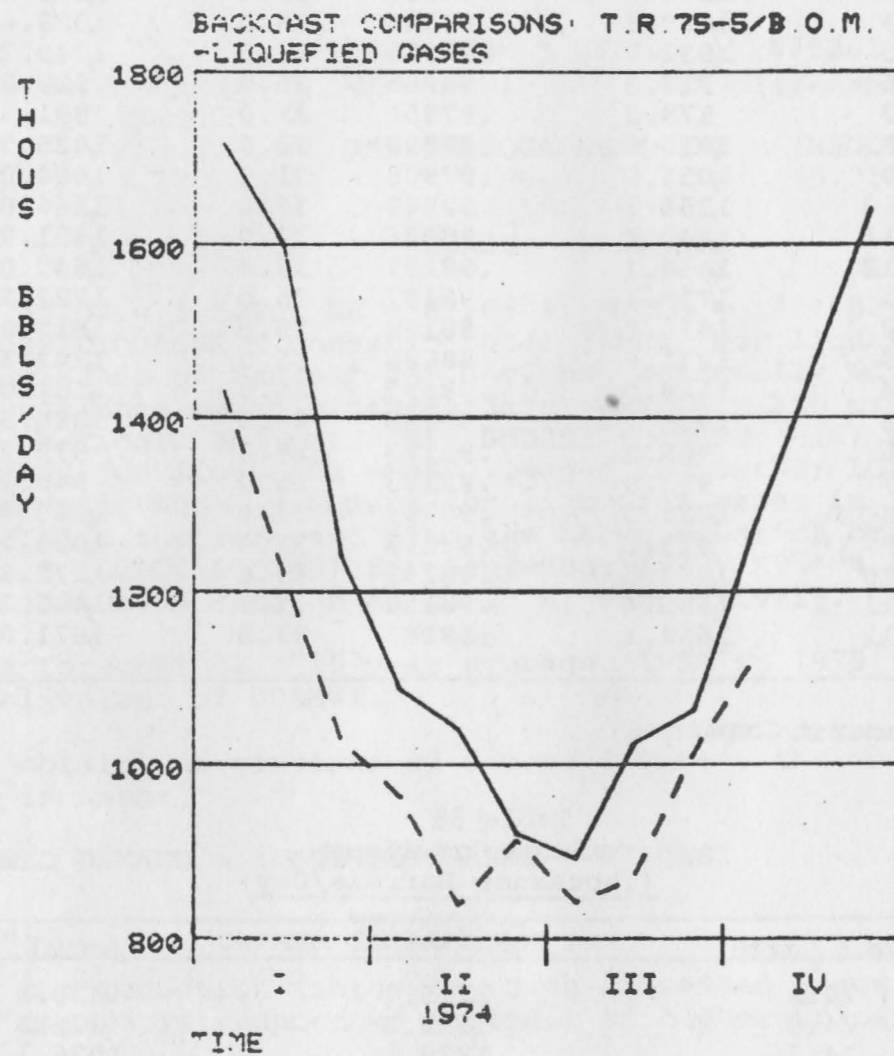
4. Backcast Comparison

Table 53
Backcast Comparisons
(Thousands Barrels/Day)

Year / Month	FEA CONSTRAINED DEMAND	Actual *
74:1	1,715.7	1,430.8
74:2	1,599.2	1,222.3
74:3	1,238.1	1,026.1
74:4	1,088.6	963.4
74:5	1,040.2	838.8
74:6	920.8	913.4
74:7	891.3	841.8
74:8	1,025.5	870.2
74:9	1,064.0	1,012.5
74:10	1,266.0	1,119.9
74:11	1,451.9	
74:12	1,642.0	

* Bureau of Mines numbers

FIGURE 15



LIQUEFIED GASES ANALYSIS
OVER FORECAST INTERVAL

4. EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:1	75:2	75:3	75:4
LIQUEFIED GASES DEMAND	1722.7	1615.8	1342.4	1168.0
CHANGE	80.7	-106.9	-273.3	-174.4
INDEPENDENT VARIABLES				
DEGREE DAYS	1058.5	907.1	748.3	418.4
CHANGE	124.0	-151.4	-158.7	-330.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	27.3	-33.3	-34.9	-72.6
FRB CHEMICALS INDEX	1,5631	1,5636	1,5611	1,5575
CHANGE	0.1131	0.0005	-0.0025	-0.0036
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN FRB CHEMICALS INDEX	26.9	0.1	-0.6	-0.9
LIQ. GASES LAGGED 12 MONTHS	1687.4	1575.8	1216.7	1079.3
CHANGE	41.7	-111.6	-359.1	-137.4
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN LIQ. GASES LAG VARIABLE	27.6	-74.0	-238.1	-91.1
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO AUTOCORRELATION ADJUST.	-0.00	0.00	-0.00	0.00
EXPORTS	35.0	35.0	35.0	25.0
CHANGE	-2.0	0.0	0.0	-10.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	-2.0	0.0	0.0	-10.0
PRICE REDUCTION FACTOR	0.9816	0.9817	0.9818	0.9820
CHANGE	0.0006	0.0001	0.0002	0.0001
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	1.0	0.2	0.2	0.1
ADD FACTOR	0.0	0.0	0.0	0.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0	0.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.1	0.0	0.0	0.0

LIQUEFIED GASES ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:5	75:6	75:7
LIQUEFIED GASES DEMAND	1088.5	972.7	948.1
CHANGE	-79.5	-115.8	-24.7

INDEPENDENT VARIABLES

DEGREE DAYS	199.4	35.8	8.0
CHANGE	-219.0	-163.6	-27.8
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	-48.2	-36.0	-6.1

FRB CHEMICALS INDEX	1,555.1	1,553.1	1,547.5
CHANGE	-0.0025	-0.0020	-0.0056
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN FRB CHEMICALS INDEX	-0.6	-0.5	-1.3

LIQ.GASES LAGGED 12 MONTHS	1032.9	913.3	878.3
CHANGE	-46.4	-119.6	-35.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN LIQ.GASES LAG VARIABLE	-30.7	-79.3	-23.2

CHANGE IN LGAS DEMAND ATTRIBUTABLE TO AUTOCORRELATION ADJUST.	-0.00	0.00	-0.00
--	-------	------	-------

EXPORTS	25.0	25.0	31.0
CHANGE	0.0	0.0	6.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0	6.0

PRICE REDUCTION FACTOR	0.9819	0.9819	0.9819
CHANGE	-0.0000	0.0000	0.0000
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	-0.0	0.0	0.0

ADD FACTOR	0.0	0.0	0.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0

CHANGE IN LGAS DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	-0.0	0.0
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LIQUEFIED GASES ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:8	75:9	75:10	75:11
LIQUEFIED GASES DEMAND	1040.4	1085.2	1272.8	1466.1
CHANGE	92.3	44.8	187.6	193.3

INDEPENDENT VARIABLES

DEGREE DAYS	15.3	90.6	302.7	602.7
CHANGE	7.3	75.3	212.1	299.9
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	1.6	16.6	46.7	66.0

FRB CHEMICALS INDEX	1,545.5	1,554.8	1,565.4	1,574.8
CHANGE	-0.0020	0.0094	0.0106	0.0094
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN FRB CHEMICALS INDEX	-0.5	2.2	2.5	2.2

LIQ.GASES LAGGED 12 MONTHS	1015.8	1055.0	1254.7	1443.4
CHANGE	137.6	39.2	199.7	188.7
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN LIQ.GASES LAG VARIABLE	91.2	26.0	132.4	125.1

CHANGE IN LGAS DEMAND ATTRIBUTABLE TO AUTOCORRELATION ADJUST.	0.00	-0.00	0.00	-0.00
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EXPORTS	31.0	31.0	37.0	37.0
CHANGE	0.0	0.0	6.0	0.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0	6.0	0.0

PRICE REDUCTION FACTOR	0.9819	0.9819	0.9819	0.9819
CHANGE	0.0000	0.0000	0.0000	0.0000
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	0.0	0.0	0.0	0.0

ADD FACTOR	0.0	0.0	0.0	0.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0	0.0

CHANGE IN LGAS DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	0.0	-0.0	0.0
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LIQUEFIED GASES ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:12
LIQUEFIED GASES DEMAND CHANGE	1671.0 204.9
INDEPENDENT VARIABLES	
DEGREE DAYS CHANGE	934.6 331.9
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAYS	73.0
FRB CHEMICALS INDEX CHANGE	1.5922 0.0174
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN FRB CHEMICALS INDEX	4.1
LIQ.GASES LAGGED 12 MONTHS CHANGE	1636.1 192.6
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN LIQ.GASES LAG VARIABLE	127.7
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO AUTOCORRELATION ADJUST.	0.00
EXPORTS CHANGE	37.0 0.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0
PRICE REDUCTION FACTOR CHANGE	0.9819 0.0000
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO PRICE ADJ. FACTORS	0.0
ADD FACTOR CHANGE IN LGAS DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0 0.0
CHANGE IN LGAS DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0

J. Other Products

1. Definition

"Other Products" includes every item in the refinery output slate except motor gasoline, distillate, residual, kerosene-based and naphtha-based jet fuels, petrochemical feedstocks, and liquefied gases. The items included within other products are asphalt, aviation gasoline, ethane, kerosene, road oil, special naphtha lubricants, still gas, wax, coke, and miscellaneous products.

(a) Asphalt

The definition includes crude asphalt as well as finished products such as: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. The conversion factor is 5.5 barrels of 42 gallons each per short ton.

(b) Aviation Gasoline

All special grades of gasoline for use in aviation reciprocating engines, as given in ASTM Specification D 910. Includes all refinery products within the gasoline range that are to be marketed straight or in blends as aviation gasoline without further processing, i.e., any refinery operation except mechanical blending. Also includes finished components in the gasoline range which will be used for blending or compounding into aviation gasoline.

(c) Ethane and/or Ethylene

Ethane is a normally gaseous paraffinic compound (C_2H_6). Ethylene is an olefinic hydrocarbon (C_4H_4) recovered from refinery processes.

(d) Kerosene

A petroleum distillate in the 300°F. to 550°F. boiling range and generally having a flashpoint higher than 100°F. by ASTM Method D 56, a gravity ranging from 40° to 46° API, and a burning point in the range of 150°F. to 175°F. It is a clean burning product suitable for use as an illuminant when burned in wick lamps. Kerosene is often used as range oil.

(e) Road Oil

Any heavy petroleum oil, including residual asphaltic oils, used as a dust palliative and surface treatment of roads and highways. It is generally produced in six grades from 0, the most liquid, to 5, the most viscous.

(f) Special Naphthas

All finished products, within the gasoline range, specially refined to specified flashpoint and boiling range, for use as paint thinners, cleaners, solvents, etc., but not to be marketed as motor gasoline, aviation gasoline, or used as petrochemical feedstocks.

(g) Lubricating Oils

Includes all grades of lubricating oils from spindle oil to cylinder oil and those used in grease. The three categories for reporting follow:

(1) Bright Stock: Refined, high-viscosity lubricating oil-base stock usually made from a residuum by suitable treatment, such as deasphalting, a combination of acid treatment, or solvent extraction, with dewaxing or clay finishing.

(2) Neutral: A distillate lubricating oil base stock with viscosity usually not above 550 sSu at 100°F., prepared by suitable treatment such as hydrofining, acid treatment, or solvent extraction with dewaxing, usually clay finished.

(3) Other: A lubricating oil base stock used in finished lubricating oils and grease including black, coastal, and red oils.

(h) Still Gas (Refinery Gas)

Any form or mixture of gas produced in refineries by cracking, reforming, and other processes, the principal constituents of which are methane, ethane, ethylene, butane, butylene, propane, propylene, etc.

(i) Wax

Included are all marketable wax whether crude scale or refined, in three grades as follows:

Conversion factor: 280 pounds per barrel of 42 gallons.

- (1) Microcrystalline: Wax extracted from certain petroleum residues and having a finer and less apparent crystalline structure than paraffin wax, and having the following physical characteristics:

Penetration at 77°F. (D-1321)-60 maximum
Viscosity at 210°F. sSu (D-88)-60 minimum
(10.22 CS)/150 maximum (31.8CS).

- (2) Crystalline, Fully Refined: A paraffin wax having the following physical characteristics:

Viscosity at 210°F. sSu (D-88)-59.9
maximum (10.18CS),

Oil content (D-721)-0.5 percent maximum,

Other +-20 Color, Saybolt Min.

- (3) Crystalline, Other: A paraffin wax having the following physical characteristics:

Viscosity at 210°F. sSu (D-88)-59.9
maximum (10.18 CS),

Oil content (D-721)-0.51 percent minimum/15
percent maximum.

(j) Petroleum Coke

A solid residue; the final product of the condensation process in cracking. It consists probably of highly polycyclic aromatic hydrocarbons very poor in hydrogen. Calcination of petroleum coke can yield almost pure carbon or artificial graphite suitable for production of carbon or graphite electrodes, structural graphite, motor brushes, dry cells, etc. This product is statistically reported in the following categories:

Conversion factor: 5 barrels (42 gallons each) per short ton.

- (1) Marketable: Those grades of coke produced in delayed or fluid cokers which may be recovered as relatively pure carbon. This "green" coke may be further purified by calcining or may be sold in the "green" state.

(2) Catalyst: In many catalytic operations (i.e., catalytic cracking) carbon is deposited on the catalyst, deactivating the catalyst. The catalyst is reactivated by burning off the carbon, using it as a fuel in the refinery process. This carbon or coke is not recoverable in a concentrated form. For statistical purposes, the amount of catalyst coke may be estimated by using an average weight percent (1.5 percent - 8.5 percent) of charging stock.

(k) Other Finished Products

Includes all finished products such as petrolatum, absorption oils, ramjet fuel, petroleum rocket fuels, and other finished products shipped to other than petroleum refineries. Excludes finished petrochemicals.

Table 54

2. Demand Comparisons		Other Products *		
Year/ Month	Base Case	Policy Option Case	Difference	Percent Difference
75:1	2048.	2048.	0.0	0.0
75:2	2042.	2041.	-1.3	-0.1
75:3	1996.	1992.	-4.4	-0.2
75:4	1974.	1965.	-8.9	-0.4
75:5	2109.	2089.	-19.9	-0.9
75:6	2300.	2270.	-30.4	-1.3
75:7	2351.	2313.	-37.9	-1.6
75:8	2416.	2377.	-39.1	-1.6
75:9	2380.	2342.	-38.5	-1.6
75:10	2306.	2269.	-37.2	-1.6
75:11	2146.	2112.	-34.4	-1.6
75:12	2081.	2048.	-33.3	-1.6

* See page 141 of this report for definition of other products.

National Supply and Demand Balance:
Other Products, Base Case

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	254.5	372.6	726.5	69.2	246.2	1,669.0
% YIELD	18.5	12.0	15.1	16.0	13.2	14.4
BLEND	47.5	104.9	161.7			314.0
IMPORTS	17.3	7.9			1.3	26.5
SHIPMENTS	2.6		283.0	.3	.7	286.6
RECEIPTS	211.3	73.7		.3	1.3	286.6
FROM INV.	34.1	-44.8	11.5	-18.5	-16.4	-34.3
SUPPLY	562.1	514.3	616.7	50.6	231.6	1,975.2
DEMAND	562.1	543.1	616.7	50.6	269.6	2,042.0
SHORT		28.8			38.0	66.8
% DEMAND		5.3			14.1	3.3
OPEN MMB	24.9	22.3	21.3	5.5	10.4	84.4
CLOSE MMB	23.9	23.6	21.0	6.0	10.8	85.3

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1			210.6		.7
PAD 2	2.6		70.8	.3	
PAD 4			.3		
PAD 5			1.3		

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	224.5	417.4	738.6	68.4	261.1	1,710.0
% YIELD	15.7	12.9	15.0	15.5	13.5	14.3
BLEND	29.9	52.0	159.5			241.4
IMPORTS	24.8	7.9			1.3	34.0
SHIPMENTS	2.6		283.0	.3	.7	286.6
RECEIPTS	211.3	73.7		.3	1.3	286.6
FROM INV.	-29.9	-71.8	40.8	-19.8	16.0	-64.8
SUPPLY	457.9	479.2	655.8	48.5	279.0	1,920.6
DEMAND	457.9	514.0	655.8	48.5	319.7	1,996.0
SHORT		34.8			40.7	75.4
% DEMAND		6.8			12.7	3.8
OPEN MMB	23.9	23.6	21.0	6.0	10.8	85.3
CLOSE MMB	24.9	25.8	19.8	6.6	10.3	87.3

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1			210.6		.7
PAD 2	2.6		70.8	.3	
PAD 4			.3		
PAD 5			1.3		

(BASE)

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	229.3	448.6	758.7	72.7	276.7	1,786.0
% YIELD	15.7	13.6	15.0	16.1	14.0	14.6
BLEND	29.9	19.0	225.5			274.4
IMPORTS	17.3	1.3			3.9	22.6
SHIPMENTS	2.6		283.0	.3	.7	286.6
RECEIPTS	211.3	73.7		.3	1.3	286.6
FROM INV.	-48.9	-45.2	-79.3	-13.1	11.0	-175.7
SUPPLY	436.2	497.3	621.8	59.6	292.3	1,907.2
DEMAND	436.2	526.1	621.8	59.6	330.3	1,974.0
SHORT		28.8			38.0	66.8
% DEMAND		5.5			11.5	3.4
OPEN MMB	24.9	25.8	19.8	6.6	10.3	87.3
CLOSE MMB	26.3	27.2	22.1	7.0	10.0	92.6

-TO-

PAD 1			210.6		.7
PAD 2	2.6		70.8	.3	
PAD 4			.3		
PAD 5			1.3		

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	238.3	495.8	783.4	74.7	284.4	1,876.6
% YIELD	15.7	14.5	15.1	16.1	14.0	14.9
BLEND	29.9	35.3	132.7			197.9
IMPORTS	17.3				3.9	21.3
SHIPMENTS	2.6		271.1	.3	.7	274.7
RECEIPTS	211.3	61.8		.3	1.3	274.7
FROM INV.	14.4	-10.7	-25.6	-.7	2.9	-19.8
SUPPLY	508.5	582.2	619.4	74.0	291.9	2,075.9
DEMAND	508.5	582.2	619.4	74.0	325.0	2,109.0
SHORT					33.1	33.1
% DEMAND					10.2	1.6
OPEN MMB	26.3	27.2	22.1	7.0	10.0	92.6
CLOSE MMB	25.9	27.5	22.9	7.0	9.9	93.2

-TO-

PAD 1			210.6		.7
PAD 2	2.6		58.9	.3	
PAD 4			.3		
PAD 5			1.3		

(BASE)

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	243.9	538.4	802.2	76.5	291.1	1,952.0
% YIELD	15.7	15.3	15.1	16.1	14.0	15.1
BLEND	29.9	35.6	176.2			241.7
IMPORTS	17.3	1.3		2.6	3.9	25.2
SHIPMENTS	2.6		283.7		.7	287.0
RECEIPTS	211.3	73.4		1.0	1.3	287.0
FROM INV.	-16.7	48.1	-32.4	19.9	22.6	41.4
SUPPLY	483.0	696.7	662.3	100.0	318.2	2,260.3
DEMAND	483.0	696.7	662.3	101.7	356.2	2,300.0
SHORT				1.7	38.0	39.7
% DEMAND				1.7	10.7	1.7
OPEN MMB	25.9	27.5	22.9	7.0	9.9	93.2
CLOSE MMB	26.4	26.1	23.9	6.4	9.2	92.0

-TO-

PAD 1			210.6		.7
PAD 2	2.6		70.8		
PAD 4			1.0		
PAD 5			1.3		

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	238.3	538.5	728.5	73.7	320.3	1,899.4
% YIELD	15.7	15.7	14.0	15.9	15.8	15.0
BLEND	18.5	41.1	214.4			273.9
IMPORTS	69.6	1.3				70.9
SHIPMENTS	2.6		283.7		.7	287.0
RECEIPTS	211.3	73.4		1.0	1.3	287.0
FROM INV.	6.1	52.1		25.4	-5.0	78.6
SUPPLY	541.2	706.4	659.2	100.2	315.8	2,322.7
DEMAND	541.2	728.7	659.2	107.1	346.2	2,382.4
SHORT		22.3		6.9	30.4	59.6
% DEMAND		3.1		6.4	8.8	2.5
OPEN MMB	26.4	26.1	23.9	6.4	9.2	92.0
CLOSE MMB	25.8	21.3	23.9	4.1	9.7	84.8

-TO-

PAD 1			210.6		.7
PAD 2	2.6		70.8		
PAD 4			1.0		
PAD 5			1.3		

(BASE)

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	232.7	471.0	706.8	66.3	312.5	1,789.3
% YIELD	15.7	14.1	14.0	14.6	15.7	14.5
BLEND	29.8	33.4	204.9			268.0
IMPORTS	65.6	2.6				68.2
SHIPMENTS	2.6		283.7	.3	.7	287.3
RECEIPTS	211.3	73.7		1.0	1.3	287.3
FROM INV.	27.1	-1.9		-5.7	-4.6	14.7
	-----	-----	-----	-----	-----	-----
SUPPLY	563.9	578.8	627.9	61.2	308.4	2,140.3
DEMAND	565.5	593.2	627.9	62.5	328.9	2,178.0
SHORT	1.6	14.4		1.3	20.4	37.7
% DEMAND	.3	2.4		2.1	6.2	1.7
OPEN MMB	25.8	21.3	23.9	4.1	9.7	84.8
CLOSE MMB	23.3	21.4	23.9	4.6	10.1	83.4

-TO-				
PAD 1		210.6		.7
PAD 2	2.6	70.8	.3	
PAD 4		1.0		
PAD 5		1.3		

3 The Demand Function

$$\begin{aligned}
 \text{DMD291OTHERNS} = & 222.281 + 2.64980 \cdot \text{YD58M} + .154286 \cdot \text{DDNMWT} \\
 & (1.83276) \quad (12.8692) \quad (3.07780) \\
 & 26.5193 \cdot \text{SEASONMO2} + 167.416 \cdot \text{SEASONMO5} \\
 & (.899254) \quad (4.13950) \\
 & +383.542 \cdot \text{SEASONMO6} + 450.981 \cdot \text{SEASONMO7} \\
 & (8.25197) \quad (9.46005) \\
 & +511.718 \cdot \text{SEASONMO8} + 456.398 \cdot \text{SEASONMO9} \\
 & (10.4713) \quad (9.81701) \\
 & +338.868 \cdot \text{SEASONMO10} + 122.494 \cdot \text{SEASONMO11} \\
 & (8.75088) \quad (3.87844)
 \end{aligned}$$

$$\bar{R}^2 = .8913; \quad \text{DW} = 1.7603; \quad \text{SE} = 62.0951;$$

where:

DMD291OTHERNS \equiv demand for other products, thousands of barrels per day, not seasonally adjusted;

YD58M \equiv disposable personal income, billions of 1958 dollars;

SEASONMO2,05,06,07,08,09,10,11 \equiv dummy variables for February, May, June, July, August, September, October, and November, respectively;

DDNMWT \equiv weighted national degree-day variable.

Note: Estimation Interval: 68:2 to 73:7

To obtain constrained demand, the following equation is used:

$$\begin{aligned}
 \text{CONSTRAINED DEMAND} = & (\text{DMD291OTHERNS} \cdot \text{PEOTHER}) \\
 & + \text{EXPOTHER}
 \end{aligned}$$

where:

PEOTHER \equiv price reduction factor for other products

EXPOTHER \equiv exports of other products

Table 55
Other Products

Year/ Month	DMD291OTHERNS	PEOTHER	EXPOTHER	Constrained Demand
74:1	1993.3	0.99479	139.0	2122.0
74:2	2001.9	.99089	139.0	2122.7
74:3	1937.2	.98670	139.0	2050.4
74:4	1881.8	.98314	159.0	2009.1
74:5	2020.9	.98085	159.0	2141.2
74:6	2210.3	.97939	159.0	2323.7
74:7	2274.1	.97859	144.0	2369.4
74:8	2335.5	.97852	144.0	2429.3
74:9	2290.2	.97901	144.0	2386.1
74:10	2207.9	.97971	144.0	2307.1
74:11	2015.5	.98069	144.0	2120.6
74:12	1988.5	.98152	144.0	2046.7
75:1	1943.8	.98203	139.0	2047.9
75:2	1938.3	.98193	139.0	2042.3
75:3	1891.1	.98193	139.0	1996.0
75:4	1848.0	.98193	159.0	1973.6
75:5	1985.5	.98193	159.0	2108.6
75:6	2180.8	.98193	159.0	2300.4
75:7	2247.7	.98193	144.0	2351.1
75:8	2314.1	.98193	144.0	2416.3
75:9	2277.6	.98193	144.0	2380.5
75:10	2201.6	.98193	144.0	2305.8
75:11	2038.8	.98193	144.0	2145.9
75:12	1972.9	.98193	144.0	2081.2

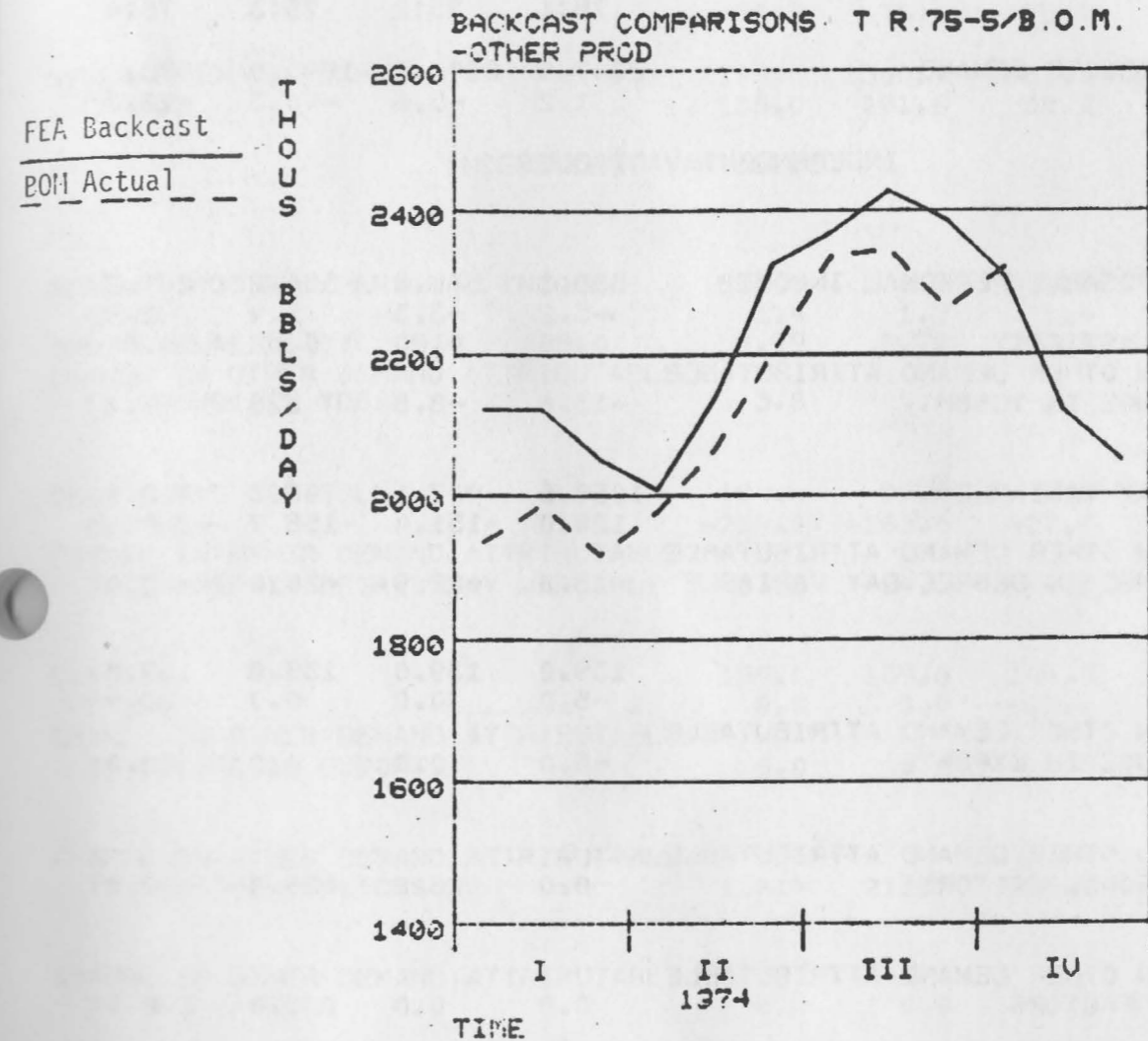
4. Other Products Table 56

SUMMARY OF BACKCASTS

1974/Month	FEA	Constrained Demand	Actual*
74:1		2122.0	1937.4
74:2		2122.7	1986.9
74:3		2050.4	1919.2
74:4		2009.1	1979.0
74:5		2141.2	2066.1
74:6		2323.7	2203.5
74:7		2369.4	2335.5
74:8		2429.3	2345.3
74:9		2386.1	2263.8
74:10		2307.1	2321.6
74:11		2120.6	
74:12		2046.7	

* Bureau of Mines numbers

FIGURE 16



OTHER PRODUCTS ANALYSIS
OVER FORECAST INTERVAL

4. EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:1	75:2	75:3	75:4
OTHER PRODUCTS DEMAND	2047.9	2042.3	1996.0	1973.6
CHANGE	1.2	-5.6	-46.3	-22.3

INDEPENDENT VARIABLES

REAL, DISPOSABLE PERSONAL INCOME	588.1	584.8	586.2	589.2
CHANGE	-5.2	-3.3	1.4	2.9
INCOME ELASTICITY	0.80	0.80	0.82	0.84
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	-13.6	-8.5	3.8	7.7

DEGREE DAY VARIABLE	1058.5	907.1	748.3	418.4
CHANGE	124.0	-151.4	-158.7	-330.0
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAY VARIABLE	18.8	-22.9	-24.0	-50.0

EXPORTS	139.0	139.0	139.0	159.0
CHANGE	-5.0	0.0	0.0	20.0
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	-5.0	0.0	0.0	20.0

CHANGE IN OTHER DEMAND ATTRIBUTABLE TO SEASONAL FACTORS	0.0	26.0	-26.0	0.0
---	-----	------	-------	-----

CHANGE IN OTHER DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0	0.0
--	-----	-----	-----	-----

CHANGE IN OTHER DEMAND ATTRIBUTABLE TO PRICE REDUCTION FACTOR	1.0	-0.2	0.0	0.0
---	-----	------	-----	-----

CHANGE IN OTHER DEMAND ATTRIBUTABLE TO OTHER FACTORS	-0.0	-0.0	0.0	-0.0
--	------	------	-----	------

OTHER PRODUCTS ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:5	75:6	75:7	75:8
OTHER PRODUCTS DEMAND	2108.6	2300.4	2351.1	2416.3
CHANGE	135.0	191.8	50.7	65.1

INDEPENDENT VARIABLES

REAL, DISPOSABLE PERSONAL INCOME	590.6	592.3	593.7	595.4
CHANGE	1.4	1.7	1.4	1.7
INCOME ELASTICITY	0.79	0.72	0.70	0.68
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	3.8	4.4	3.7	4.4

DEGREE DAY VARIABLE	199.4	35.8	8.0	15.3
CHANGE	-219.0	-163.6	-27.8	7.3
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAY VARIABLE	-33.2	-24.8	-4.2	1.1

EXPORTS	159.0	159.0	144.0	144.0
CHANGE	0.0	0.0	-15.0	0.0
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0	-15.0	0.0

CHANGE IN OTHER DEMAND ATTRIBUTABLE TO SEASONAL FACTORS	164.4	212.2	66.2	59.6
---	-------	-------	------	------

CHANGE IN OTHER DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0	0.0
--	-----	-----	-----	-----

CHANGE IN OTHER DEMAND ATTRIBUTABLE TO PRICE REDUCTION FACTOR	0.0	0.0	0.0	0.0
---	-----	-----	-----	-----

CHANGE IN OTHER DEMAND ATTRIBUTABLE TO OTHER FACTORS	0.0	-0.0	0.0	-0.0
--	-----	------	-----	------



OTHER PRODUCTS ANALYSIS
OVER FORECAST INTERVAL

EVALUATION OF PERIOD-TO-PERIOD CHANGES

	75:9	75:10	75:11	75:12
OTHER PRODUCTS DEMAND	2380.5	2305.8	2145.9	2081.2
CHANGE	-35.8	-74.6	-159.9	-64.7
INDEPENDENT VARIABLES				
REAL DISPOSABLE PERSONAL INCOME	598.1	601.5	604.2	606.2
CHANGE	2.7	3.3	2.7	2.0
INCOME ELASTICITY	0.70	0.72	0.79	0.81
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO CHANGE IN YD58M	7.1	8.6	7.1	5.3
DEGREE DAY VARIABLE	90.6	302.7	602.7	934.6
CHANGE	75.3	212.1	299.9	331.9
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO CHANGE IN DEGREE DAY VARIABLE	11.4	32.1	45.4	50.3
EXPORTS	144.0	144.0	144.0	144.0
CHANGE	0.0	0.0	0.0	0.0
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO CHANGE IN EXPORTS	0.0	0.0	0.0	0.0
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO SEASONAL FACTORS	-54.3	-115.4	-212.5	-120.3
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO ADD FACTORS	0.0	0.0	0.0	0.0
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO PRICE REDUCTION FACTOR	0.0	0.0	0.0	0.0
CHANGE IN OTHER DEMAND ATTRIBUTABLE TO OTHER FACTORS	0.0	-0.0	0.0	0.0

APPENDIX

A. Base Case

Crude
NGL
Unfinished Oils
Total

B. Policy Option Case

A. Base Case

Crude
Base Case

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
PROD	104.0	891.4	5,914.2	682.6	1,070.7	8,663.0
RUNS	-1,375.7	-3,105.3	-4,815.4	-430.9	-1,865.3	-11,592.8
% CAPAC.	77.5	76.5	77.5	78.5	78.5	77.4
RERUN	161.6	63.9	97.1	-.7	153.2	475.1
IMPORTS	906.3	589.1	189.2	40.2	534.9	2,259.7
SHIPMENTS	9.8	25.4	1,405.6	260.7	.2	1,701.7
RECEIPTS	121.0	1,548.9	14.7	.2	16.9	1,701.7
FROM INV.	92.7	37.4	5.9	-30.6	89.7	195.1
	-----	-----	-----	-----	-----	-----
SUPPLY SHORT	.0		.0	.0	.0	.0
OPEN MMB	18.9	79.1	115.4	16.0	38.7	268.2
CLOSE MMB	16.4	78.0	115.3	16.9	36.2	262.7

-TO-

PAD 1		24.8	96.2			
PAD 2	.0		1,309.4	239.5		
PAD 3	9.8	.6		4.3		
PAD 4					.2	
PAD 5				16.9		

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
PROD	104.8	888.8	5,912.5	684.4	1,072.5	8,663.0
RUNS	-1,429.8	-3,229.1	-4,939.7	-441.9	-1,936.5	-11,977.2
% CAPAC.	80.6	79.6	79.5	80.5	81.5	80.0
RERUN	47.6	-42.9	-6.9	5.2	53.9	56.8
IMPORTS	1,180.3	889.3	313.0	60.3	850.1	3,292.9
SHIPMENTS	105.7	25.4	1,405.6	260.7	.2	1,797.6
RECEIPTS	121.0	1,549.1	110.4	.2	16.9	1,797.6
FROM INV.	81.8	-29.7	16.4	-47.3	-56.5	-35.4
	-----	-----	-----	-----	-----	-----
SUPPLY SHORT	.0	.0		.0	.0	.0
OPEN MMB	16.4	78.0	115.3	16.9	36.2	262.7
CLOSE MMB	13.8	79.0	114.8	18.3	37.9	263.8

-TO-

PAD 1		24.8	96.2			
PAD 2	.2		1,309.4	239.5		
PAD 3	105.5	.6		4.3		
PAD 4					.2	
PAD 5				16.9		

(BASE)

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
PROD	104.3	882.9	5,881.9	683.7	1,069.1	8,622.0
RUNS	-1,460.2	-3,298.5	-5,063.9	-451.6	-1,978.4	-12,252.8
% CAPAC.	82.3	81.3	81.5	82.3	83.3	81.8
RERUN	143.3	-63.4	-6.7	.6	2.4	76.2
IMPORTS	1,313.8	884.7	483.9	63.5	858.6	3,604.7
SHIPMENTS	105.7	25.4	1,405.6	260.7	.2	1,797.6
RECEIPTS	121.0	1,549.1	110.4	.2	16.9	1,797.6
FROM INV.	-116.6	70.7	.0	-35.6	31.6	-50.0
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	13.8	79.0	114.8	18.3	37.9	263.8
CLOSE MMB	17.3	76.8	114.8	19.4	37.0	265.3

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		24.8	96.2		
PAD 2	.2		1,309.4	239.5	
PAD 3	105.5	.6		4.3	
PAD 4					.2
PAD 5				16.9	

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
PROD	105.2	881.2	5,879.3	686.3	1,070.9	8,622.9
RUNS	-1,517.7	-3,430.1	-5,188.2	-463.9	-2,031.6	-12,631.6
% CAPAC.	85.5	84.5	83.5	84.5	85.5	84.4
RERUN	157.9	-7.3	13.5	-7.1	74.1	231.0
IMPORTS	1,397.7	884.7	483.9	63.5	954.0	3,783.9
SHIPMENTS	105.7	25.4	1,405.6	302.9	.2	1,839.8
RECEIPTS	121.0	1,591.3	110.4	.2	16.9	1,839.8
FROM INV.	-158.3	105.7	106.7	24.0	-84.0	-6.1
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	17.3	76.8	114.8	19.4	37.0	265.3
CLOSE MMB	22.2	73.6	111.5	18.7	39.6	265.5

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		24.8	96.2		
PAD 2	.2		1,309.4	281.7	
PAD 3	105.5	.6		4.3	
PAD 4					.2
PAD 5				16.9	

(BASE)

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
PROD	105.2	880.3	5,876.8	687.2	1,073.4	8,622.9
RUNS	-1,553.2	-3,511.2	-5,312.4	-474.9	-2,079.1	-12,931.0
% CAPAC.	87.5	86.5	85.5	86.5	87.5	86.4
RERUN	124.2	10.3	11.2	-3.0	72.1	214.7
IMPORTS	1,359.7	884.7	483.9	63.5	858.6	3,650.5
SHIPMENTS	105.7	25.4	1,405.6	260.7	.2	1,797.6
RECEIPTS	121.0	1,549.1	110.4	.2	16.9	1,797.6
FROM INV.	-51.1	212.2	235.8	-12.2	58.3	443.0
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	22.2	73.6	111.5	18.7	39.6	265.5
CLOSE MMB	23.8	67.2	104.4	19.0	37.8	252.2

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		24.8	96.2		
PAD 2	.2		1,309.4	239.5	
PAD 3	105.5	.6		4.3	
PAD 4					.2
PAD 5				16.9	

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3075
PROD	104.9	871.8	5,840.2	688.0	1,070.1	8,575.0
RUNS	-1,517.7	-3,430.1	-5,188.2	-463.9	-2,031.6	-12,631.6
% CAPAC.	85.5	84.5	83.5	84.5	85.5	84.4
RERUN	147.6	21.4	80.6	3.8	57.5	310.9
IMPORTS	1,240.4	887.0	604.1	61.2	883.5	3,676.2
SHIPMENTS	105.7	25.4	1,454.9	348.5	.2	1,934.6
RECEIPTS	121.0	1,679.6	116.9	.2	16.9	1,934.6
FROM INV.	9.5	-4.3	1.4	59.2	3.8	69.6
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	23.8	67.2	104.4	19.0	37.8	252.2
CLOSE MMB	22.9	67.6	104.3	13.6	37.5	245.8

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		24.8	96.2		
PAD 2	.2		1,358.7	320.8	
PAD 3	105.5	.6		10.8	
PAD 4					.2
PAD 5				16.9	

(BASE)

NGL
Base Case

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
PROD	104.8	864.0	5,809.8	690.3	1,070.6	8,539.4
RUNS	-1,482.2	-3,348.9	-5,063.9	-452.9	-1,984.1	-12,332.1
% CAPAC.	83.5	82.5	81.5	82.5	83.5	82.4
RERUN	157.5	11.4	64.1	.3	74.1	307.4
IMPORTS	1,211.5	828.1	743.8	78.5	822.4	3,684.3
SHIPMENTS	105.7	25.4	1,503.6	260.7	.2	1,895.6
RECEIPTS	121.0	1,647.1	110.4	.2	16.9	1,895.6
FROM INV.	-6.7	23.7	-160.4	-55.7	.4	-198.9
	-----	-----	-----	-----	-----	-----
SUPPLY SHORT	.0	.0		.0	.0	.0
OPEN MMB	22.9	67.6	104.3	13.6	37.5	245.8
CLOSE MMB	23.5	65.4	119.0	18.7	37.4	264.1
		24.8	96.2			
-TO-				239.5		
PAD 1			1,407.4	4.3		
PAD 2	.2					
PAD 3	105.5	.6			.2	
PAD 4				16.9		
PAD 5						

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
PROD BLEND	22.1	243.7	1,335.9	43.4	30.8	1,676.0
IMPORTS	-247.6	-956.2	-883.8	-13.3	-25.0	-2,126.2
SHIPMENTS		55.1	234.9	12.4		302.4
RECEIPTS	133.9	143.0	24.7	.8		302.4
FROM INV.	91.6	624.6	-241.9	-18.4	-5.7	450.2
	-----	-----	-----	-----	-----	-----
SUPPLY SHORT		.0	.0		.0	.0
OPEN MMB	4.0	33.1	60.2	.8	1.8	99.9
CLOSE MMB	1.4	15.6	66.9	1.3	2.0	87.3
		42.8	91.1			
-TO-			143.0			
PAD 1				12.4		
PAD 2						
PAD 3		12.3				
PAD 4						
PAD 5						

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
PROD BLEND	22.1	245.2	1,334.6	43.2	30.8	1,676.0
IMPORTS	-156.0	-474.2	-871.9	-11.6	-60.5	-1,574.4
SHIPMENTS		55.1	234.9	12.4		302.4
RECEIPTS	133.9	143.0	24.7	.8		302.4
FROM INV.		141.2	-252.4	-20.0	29.7	-101.5
	-----	-----	-----	-----	-----	-----
SUPPLY SHORT	.0		.0		.0	.0
OPEN MMB	1.4	15.6	66.9	1.3	2.0	87.3
CLOSE MMB	1.4	11.2	74.8	1.9	1.1	90.4
		42.8	91.1			
-TO-			143.0			
PAD 1				12.4		
PAD 2						
PAD 3		12.3				
PAD 4						
PAD 5						

(BASE)

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
PROD BLEND	22.0	231.2	1,330.1	43.1	30.7	1,657.0
IMPORTS	-155.9	-173.1	-1,232.9			-1,562.0
SHIPMENTS		55.1	234.9	12.4		302.4
RECEIPTS	133.9	143.0	24.7	.8		302.4
FROM INV.		-145.8	113.0	-31.4	-30.5	-94.9
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	1.4	11.2	74.8	1.9		90.4
CLOSE MMB	1.4	15.6	71.4	2.9		93.3
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0			
PAD 3		12.3		12.4		
PAD 4			.8			

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
PROD BLEND	22.0	233.6	1,328.4	43.1	29.7	1,656.8
IMPORTS	-155.9	-321.7	-725.6	-31.2	-29.6	-1,264.3
SHIPMENTS		55.1	234.9	12.6		302.4
RECEIPTS	133.9	143.2	24.7	.8		302.6
FROM INV.			-392.5			-392.5
SUPPLY SHORT	.0			.0		.0
OPEN MMB	1.4	15.6	71.4	2.9	2.0	93.3
CLOSE MMB	1.4	15.6	83.5	2.9	2.0	105.4
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0	.2		
PAD 3		12.3		12.4		
PAD 4			.8			

(BASE)

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
PROD BLEND	22.0	236.1	1,326.1	43.1	29.7	1,657.0
IMPORTS	-155.9	-324.2	-963.4	-31.2	-29.6	-1,504.5
SHIPMENTS		55.1	234.9	12.6		302.6
RECEIPTS	133.9	143.2	24.7	.8		302.6
FROM INV.			-152.4			-152.4
SUPPLY SHORT	.0		.0	.0		.0
OPEN MMB	1.4	15.6	83.5	2.9	2.0	105.4
CLOSE MMB	1.4	15.6	88.1	2.9	2.0	110.0
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0	.2		
PAD 3		12.3		12.4		
PAD 4			.8			

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
PROD BLEND	22.0	230.8	1,325.2	43.0	29.0	1,650.0
IMPORTS	-96.4	-374.4	-1,172.0	-31.2	-28.9	-1,703.0
SHIPMENTS		23.2	200.9	12.6		236.6
RECEIPTS	74.4	143.2	18.2	.8		236.6
FROM INV.		23.6	29.5			53.1
SUPPLY SHORT	.0			.0		.0
OPEN MMB	1.4	15.6	88.1	2.9	2.0	110.0
CLOSE MMB	1.4	13.4	85.4	2.9	2.0	105.1
-TO-						
PAD 1		17.4	57.1			
PAD 2			143.0	.2		
PAD 3		5.8		12.4		
PAD 4			.8			

(BASE)

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
PROD BLEND	21.4	233.6	1,329.5	43.2	28.4	1,656.1
IMPORTS	-155.3	-304.5	-1,120.0	-45.9	-28.4	-1,654.3
SHIPMENTS		48.6	234.9	12.6		296.1
RECEIPTS	133.9	143.2	18.2	.8		296.1
FROM INV.	-----	-23.6	7.3	14.6	-----	-1.7
SUPPLY SHORT	.0			.0		.0
OPEN MMB	1.4	13.4	85.4	2.9	2.0	105.1
CLOSE MMB	1.4	15.6	84.7	1.5	2.0	105.3
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0	.2		
PAD 3		5.8		12.4		
PAD 4			.8			

Unfinished Oils
Base Case

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
BLEND IMPORTS	-161.6	-63.8	-97.0	.7	-153.2	-475.0
SHIPMENTS	92.8	6.4	40.2		59.9	195.2
RECEIPTS			25.9			25.9
FROM INV.	25.2					25.9
	43.6	57.5	82.8	-.7	96.3	279.9
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	14.1	19.8	38.6	2.9	25.7	101.2
CLOSE MMB	12.9	18.2	36.3	2.9	23.0	93.3
-TO-						
PAD 1			25.2			
PAD 5			.7			

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
BLEND IMPORTS	-47.6	43.0	6.9	-5.1	-53.8	-56.7
SHIPMENTS	119.3	9.2	66.9		89.3	284.7
RECEIPTS			25.9			25.9
FROM INV.	25.2				.7	25.9
	-96.8	-52.1	-47.9	5.2	-36.0	-227.9
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	12.9	18.2	36.3	2.9	23.0	93.3
CLOSE MMB	15.9	19.8	37.8	2.8	24.1	100.4
-TO-						
PAD 1			25.2			
PAD 5			.7			

(BASE)

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
BLEND	-143.3	63.4	6.7	-.5	-2.3	-76.1
IMPORTS	109.9	7.9	63.0		79.1	259.9
SHIPMENTS			25.9			25.9
RECEIPTS	25.2				.7	25.9
FROM INV.	8.3	-71.3	-43.8	.6	-77.4	-183.6
	-----	-----	-----	-----	-----	-----
SUPPLY	.0		.0	.0	.0	.0
SHORT						
OPEN MMB	15.9	19.8	37.8	2.8	24.1	100.4
CLOSE MMB	15.7	22.0	39.1	2.7	26.5	105.9
			25.2			
-TO-			.7			
PAD 1						
PAD 5						

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
BLEND	-157.9	7.3	-13.4	7.2	-74.0	-230.9
IMPORTS	122.1	7.9	63.0		87.9	280.9
SHIPMENTS			25.9			25.9
RECEIPTS	25.2				.7	25.9
FROM INV.	10.7	-15.2	-23.6	-7.1	-14.5	-49.9
	-----	-----	-----	-----	-----	-----
SUPPLY	.0	.0	.0	.0	.0	.0
SHORT						
OPEN MMB	15.7	22.0	39.1	2.7	26.5	105.9
CLOSE MMB	15.3	22.4	39.8	3.0	26.9	107.5
			25.2			
-TO-			.7			
PAD 1						
PAD 5						

(BASE)

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
BLEND	-124.2	-10.3	-11.1	3.1	-72.0	-214.7
IMPORTS	109.9	7.9	63.0		79.1	259.9
SHIPMENTS			25.9			25.9
RECEIPTS	25.2				.7	25.9
FROM INV.	-10.8	2.5	-25.9	-3.0	-7.7	-45.1
	-----	-----	-----	-----	-----	-----
SUPPLY	.0	.0	.0	.0	.0	.0
SHORT						
OPEN MMB	15.3	22.4	39.8	3.0	26.9	107.5
CLOSE MMB	15.7	22.4	40.6	3.1	27.2	108.8
			25.2			
-TO-			.7			
PAD 1						
PAD 5						

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
BLEND	-147.6	-21.3	-80.5	-3.7	-57.5	-310.9
IMPORTS	113.4	7.9	78.8		57.8	257.8
SHIPMENTS			25.9			25.9
RECEIPTS	25.2				.7	25.9
FROM INV.	9.0	13.5	27.7	3.8	-.9	53.2
	-----	-----	-----	-----	-----	-----
SUPPLY	.0	.0	.0		.0	.0
SHORT						
OPEN MMB	15.7	22.4	40.6	3.1	27.2	108.8
CLOSE MMB	14.8	21.1	38.0	2.7	27.2	103.9
			25.2			
-TO-			.7			
PAD 1						
PAD 5						

(BASE)

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
UNFINISHED						
BLEND	-157.4	-11.4	-64.0	-.3	-74.0	-307.3
IMPORTS	137.5	9.2	80.1		49.3	276.1
SHIPMENTS			25.9			25.9
RECEIPTS	25.2				.7	25.9
FROM INV.	-5.2	2.2	9.9	.3	24.0	31.2
SUPPLY	.0	.0	.0	.0	.0	.0
SHORT						
OPEN MMB	14.8	21.1	38.0	2.7	27.2	103.9
CLOSE MMB	15.3	20.9	37.1	2.7	25.0	101.1

-TO-	PAD 1	PAD 5
PAD 1		25.2
PAD 5		.7

National Supply and Demand Balance:
Total Products, Base Case

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	1,410.1	3,201.7	4,961.5	434.3	1,906.3	11,913.9
% YIELD	102.5	103.1	103.0	100.8	102.2	102.8
BLEND	247.7	956.2	883.8	13.4	25.1	2,126.2
IMPORTS	1,490.7	126.5	84.9	44.6	91.6	1,838.4
SHIPMENTS	134.7	187.5	3,582.4	76.7	.7	3,982.0
RECEIPTS	3,205.5	527.8	116.3	31.0	101.4	3,982.0
FROM INV.	969.8	-15.2	457.6	-44.5	35.3	1,402.9
SUPPLY	7,189.1	4,609.5	2,921.8	402.0	2,159.0	17,281.4
DEMAND	7,191.4	4,659.7	3,240.8	410.7	2,205.4	17,708.0
SHORT	2.3	50.2	319.0	8.7	46.3	426.6
% DEMAND	.0	1.1	9.8	2.1	2.1	2.4
OPEN MMB	194.4	192.7	185.5	19.3	72.8	664.8
CLOSE MMB	167.2	193.1	172.7	20.5	71.8	625.5

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		58.8	3,146.0		.7
PAD 2	134.7		368.1	25.0	
PAD 3		116.3			
PAD 4		12.4	18.6		
PAD 5			49.7	51.7	

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	1,488.5	3,333.0	5,075.5	446.0	1,994.2	12,337.1
% YIELD	104.1	103.2	102.7	100.9	103.0	103.0
BLEND	156.0	474.3	872.0	11.6	60.5	1,574.4
IMPORTS	2,020.5	127.6	107.1	44.6	108.9	2,408.8
SHIPMENTS	134.7	187.5	3,599.1	71.3	.7	3,993.2
RECEIPTS	3,205.5	547.3	116.3	31.0	93.1	3,993.2
FROM INV.	283.5	1.4	251.3	-65.2	-74.0	397.0
SUPPLY	7,019.2	4,296.1	2,823.2	396.8	2,182.0	16,717.3
DEMAND	7,022.4	4,347.6	3,088.3	405.1	2,228.5	17,092.0
SHORT	3.2	51.6	265.1	8.3	46.5	374.7
% DEMAND	.0	1.2	8.6	2.1	2.1	2.2
OPEN MMB	167.2	193.1	172.7	20.5	71.8	625.5
CLOSE MMB	158.5	193.1	164.9	22.6	74.1	613.2

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		58.8	3,146.0		.7
PAD 2	134.7		393.1	19.6	
PAD 3		116.3			
PAD 4		12.4	18.6		
PAD 5			41.4	51.7	

(BASE)

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	1,520.1	3,407.4	5,202.7	456.2	2,016.3	12,602.7
% YIELD	104.1	103.3	102.7	101.0	101.9	102.9
BLEND	155.9	173.2	1,232.9			1,562.0
IMPORTS	1,339.6	64.0	93.9	17.1	61.9	1,576.5
SHIPMENTS	134.7	187.5	3,598.6	74.5	.7	3,995.9
RECEIPTS	3,205.5	550.0	116.3	31.0	93.1	3,995.9
FROM INV.	38.5	232.7	-428.4	19.4	118.1	-19.7
SUPPLY	6,125.0	4,240.0	2,618.8	449.1	2,288.6	15,721.5
DEMAND	6,128.2	4,280.1	2,866.2	457.8	2,332.5	16,064.8
SHORT	3.2	40.1	247.5	8.7	43.9	343.3
% DEMAND	.1	.9	8.6	1.9	1.9	2.1
OPEN MMB	158.5	193.1	164.9	22.6	74.1	613.2
CLOSE MMB	157.3	186.1	177.8	22.0	70.6	613.8

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		58.8	3,146.0		
PAD 2	134.7		392.6	22.8	.7
PAD 3		116.3			
PAD 4		12.4	18.6		
PAD 5			41.4	51.7	

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	1,580.0	3,532.0	5,328.3	468.6	2,064.1	12,973.0
% YIELD	104.1	103.0	102.7	101.0	101.6	102.7
BLEND	155.9	321.7	725.7	31.3	29.7	1,264.3
IMPORTS	1,417.2	62.7	95.6	17.1	75.1	1,667.7
SHIPMENTS	134.7	180.8	3,492.0	80.7	.7	3,888.9
RECEIPTS	3,131.0	524.2	117.0	23.6	93.1	3,888.9
FROM INV.	-445.1	-209.2	226.7	-13.0	-42.2	-482.9
SUPPLY	5,704.2	4,050.6	3,001.4	446.8	2,219.0	15,422.0
DEMAND	5,704.5	4,056.6	3,264.4	452.6	2,256.2	15,734.3
SHORT	.3	6.0	263.0	5.8	37.2	312.3
% DEMAND	.0	.1	8.1	1.3	1.6	2.0
OPEN MMB	157.3	186.1	177.8	22.0	70.6	613.8
CLOSE MMB	171.1	192.6	170.8	22.4	71.9	628.7

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		58.8	3,071.5		
PAD 2	134.7		360.5	29.0	.7
PAD 3		117.0			
PAD 4		5.0	18.6		
PAD 5			41.4	51.7	

(BASE)

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	1,616.9	3,618.0	5,455.9	479.7	2,112.4	13,282.9
% YIELD	104.1	103.0	102.7	101.0	101.6	102.7
BLEND	155.9	324.2	963.4	31.3	29.7	1,504.5
IMPORTS	1,275.6	64.0	94.2	19.7	58.9	1,512.5
SHIPMENTS	134.7	180.8	3,324.4	80.7	.7	3,721.3
RECEIPTS	2,963.5	523.6	117.0	24.1	93.1	3,721.3
FROM INV.	-291.8	-76.8	-408.3	33.4	-16.7	-760.3
SUPPLY	5,585.4	4,272.2	2,897.8	507.5	2,276.7	15,539.6
DEMAND	5,585.4	4,278.2	3,108.2	515.0	2,316.1	15,803.0
SHORT		6.0	210.4	7.5	39.4	263.4
% DEMAND		.1	6.8	1.5	1.7	1.7
OPEN MMB	171.1	192.6	170.8	22.4	71.9	628.7
CLOSE MMB	179.9	194.9	183.0	21.4	72.4	651.5

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		58.8	2,904.0		.7
PAD 2	134.7		359.9	29.0	
PAD 3		117.0			
PAD 4		5.0	19.1		
PAD 5			41.4	51.7	

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	1,580.0	3,536.4	5,348.8	468.4	2,102.5	13,036.1
% YIELD	104.1	103.1	103.1	101.0	103.5	103.2
BLEND	96.4	374.5	1,172.0	31.2	29.0	1,703.1
IMPORTS	1,608.3	77.7	151.1	17.1	114.3	1,968.4
SHIPMENTS	134.7	145.0	3,572.3	80.7	.7	3,933.4
RECEIPTS	3,046.8	667.9	83.6	24.1	110.9	3,933.4
FROM INV.	-554.7	-178.7	-279.9	45.7	-92.8	-1,060.6
SUPPLY	5,642.1	4,332.8	2,903.2	505.8	2,263.1	15,647.0
DEMAND	5,642.1	4,367.2	3,008.9	516.8	2,293.5	15,828.4
SHORT		34.3	105.7	11.0	30.4	181.4
% DEMAND		.8	3.5	2.1	1.3	1.1
OPEN MMB	179.9	194.9	183.0	21.4	72.4	651.5
CLOSE MMB	230.9	211.3	208.8	17.2	80.9	749.1

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		56.4	2,989.7		.7
PAD 2	134.7		504.2	29.0	
PAD 3		83.6			
PAD 4		5.0	19.1		
PAD 5			59.2	51.7	

(BASE)

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	1,543.0	3,460.5	5,223.3	456.6	2,056.3	12,739.6
% YIELD	104.1	103.3	103.1	100.8	103.6	103.3
BLEND	155.3	304.5	1,120.1	46.0	28.4	1,654.3
IMPORTS	2,037.8	109.2	116.3	26.3	145.5	2,435.0
SHIPMENTS	150.2	92.3	3,767.4	80.7	.7	4,091.2
RECEIPTS	3,174.0	723.7	60.0	24.1	109.4	4,091.2
FROM INV.	92.9	241.4	265.3	-14.6	43.4	628.3
	-----	-----	-----	-----	-----	-----
SUPPLY	6,852.8	4,747.1	3,017.6	457.5	2,382.3	17,457.2
DEMAND	6,854.4	4,764.0	3,101.8	458.8	2,402.7	17,581.7
SHORT	1.6	17.0	84.2	1.3	20.4	124.4
% DEMAND	.0	.4	2.7	.3	.9	.7
OPEN MMB	230.9	211.3	208.8	17.2	80.9	749.1
CLOSE MMB	222.3	189.1	184.4	18.5	76.9	691.3
-TO-						
PAD 1		27.3	3,146.0		.7	
PAD 2	150.2		544.5	29.0		
PAD 3		60.0				
PAD 4		5.0	19.1			
PAD 5			57.7	51.7		

B. Policy Option Case

CRUDE
Policy Option

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
PROD	104.4	895.5	5,941.5	685.8	1,075.7	8,703.0
RUNS	-1,321.5	-3,015.7	-4,678.2	-408.7	-1,792.7	-11,216.9
% CAPAC.	74.5	74.3	75.3	74.5	75.5	74.9
RERUN	238.0	61.1	-39.1	-.7	142.0	401.3
IMPORTS	547.0	306.5	94.6	20.1	425.0	1,393.2
SHIPMENTS	9.8	25.4	1,628.4	266.3		1,929.9
RECEIPTS	349.2	1,548.9	14.7		17.1	1,929.9
FROM INV.	92.7	229.0	294.9	-30.1	132.9	719.4
	-----	-----	-----	-----	-----	-----
SUPPLY	.0	.0	.0	.0	.0	.0
SHORT						
OPEN MMB	18.9	79.1	115.4	16.0	38.7	268.2
CLOSE MMB	16.4	72.7	107.2	16.9	35.0	248.0

-TO-

PAD 1		24.8	319.0	5.4		
PAD 2	.0		1,309.4	239.5		
PAD 3	9.8	.6		4.3		
PAD 5				17.1		

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
PROD	105.3	892.9	5,939.8	687.5	1,077.4	8,703.0
RUNS	-1,389.7	-3,137.4	-4,802.4	-418.8	-1,836.5	-11,585.1
% CAPAC.	78.3	77.3	77.3	76.3	77.3	77.4
RERUN	34.4	-41.4	-23.7	5.2	53.9	28.3
IMPORTS	1,094.0	711.5	252.3	53.6	847.1	2,958.4
SHIPMENTS	46.7	25.4	1,458.4	342.0	.2	1,872.7
RECEIPTS	121.0	1,683.1	51.5	.2	16.9	1,872.7
FROM INV.	81.8	-83.2	41.1	14.4	-158.4	-104.5
	-----	-----	-----	-----	-----	-----
SUPPLY	.0	.0	.0	.0	.0	.0
SHORT						
OPEN MMB	16.4	72.7	107.2	16.9	35.0	248.0
CLOSE MMB	13.8	75.2	105.9	16.4	39.9	251.3

-TO-

PAD 1		24.8	96.2			
PAD 2	.2		1,362.2	320.8		
PAD 3	46.6	.6		4.3		
PAD 4						
PAD 5					.2	
				16.9		

(POLICY OPTION)

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
PROD	105.3	891.1	5,936.5	690.1	1,079.0	8,702.0
RUNS	-1,409.2	-3,181.9	-4,926.7	-432.5	-1,895.8	-11,846.3
% CAPAC.	79.4	78.4	79.3	78.8	79.8	79.1
RERUN	131.1	-64.2	-19.3	.6	-6.3	41.8
IMPORTS	1,208.6	796.3	387.2	50.8	763.2	3,206.0
SHIPMENTS	86.5	25.4	1,405.6	260.7	.2	1,778.4
RECEIPTS	121.0	1,549.1	91.2	.2	16.9	1,778.4
FROM INV.	-70.3	35.2	-63.2	-48.4	43.3	-103.4
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	13.8	75.2	105.9	16.4	39.9	251.3
CLOSE MMB	15.9	74.2	107.8	17.9	38.6	254.4

-TO-

PAD 1		24.8	96.2			
PAD 2	.2		1,309.4	239.5		
PAD 3	86.3	.6		4.3		
PAD 4					.2	
PAD 5				16.9		

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
PROD	106.2	889.3	5,933.9	692.7	1,080.8	8,702.9
RUNS	-1,445.6	-3,265.1	-5,050.9	-440.8	-1,911.3	-12,113.9
% CAPAC.	81.4	80.4	81.3	80.3	80.4	80.9
RERUN	145.7	-4.7	3.8	-7.1	65.3	202.9
IMPORTS	1,359.7	796.3	435.6	57.2	766.2	3,414.8
SHIPMENTS	105.7	25.4	1,405.6	342.0	.2	1,878.9
RECEIPTS	121.0	1,630.4	110.4	.2	16.9	1,878.9
FROM INV.	-181.2	-20.6	-27.0	40.0	-17.6	-206.6
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	15.9	74.2	107.8	17.9	38.6	254.4
CLOSE MMB	21.5	74.8	108.6	16.6	39.1	260.8

-TO-

PAD 1		24.8	96.2			
PAD 2	.2		1,309.4	320.8		
PAD 3	105.5	.6		4.3		
PAD 4					.2	
PAD 5				16.9		

(POLICY OPTION)

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
PROD	106.2	888.5	5,931.3	693.5	1,083.4	8,702.9
RUNS	-1,514.0	-3,421.6	-5,175.2	-457.3	-2,002.8	-12,571.0
% CAPAC.	85.3	84.3	83.3	83.3	84.3	84.0
RERUN	112.0	9.6	-1.4	-3.0	63.3	180.4
IMPORTS	1,208.6	745.1	387.2	50.8	763.2	3,154.9
SHIPMENTS	87.3	25.4	1,405.6	260.7	.2	1,779.2
RECEIPTS	121.0	1,549.1	92.1	.2	16.9	1,779.2
FROM INV.	53.6	254.8	171.8	-23.4	76.3	533.0
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	21.5	74.8	108.6	16.6	39.1	260.8
CLOSE MMB	19.9	67.2	103.5	17.3	36.8	244.8

-TO-

PAD 1		24.8	96.2			
PAD 2	.2		1,309.4	239.5		
PAD 3	87.2	.6		4.3		
PAD 4					.2	
PAD 5				16.9		

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
PROD	106.4	884.0	5,921.9	697.6	1,085.1	8,695.0
RUNS	-1,441.5	-3,259.2	-5,050.9	-440.8	-1,905.9	-12,098.6
% CAPAC.	81.2	80.3	81.3	80.3	80.2	80.8
RERUN	133.5	23.2	61.4	3.8	50.3	272.2
IMPORTS	1,180.4	709.6	483.3	49.0	774.8	3,197.1
SHIPMENTS	105.7	25.4	1,447.4	342.0	.2	1,920.7
RECEIPTS	121.0	1,672.2	110.4	.2	16.9	1,920.7
FROM INV.	6.0	-4.3	-78.5	32.3	-20.9	-65.6
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	19.9	67.2	103.5	17.3	36.8	244.8
CLOSE MMB	19.4	67.6	110.7	14.4	38.8	250.8

-TO-

PAD 1		24.8	96.2			
PAD 2	.2		1,351.2	320.8		
PAD 3	105.5	.6		4.3		
PAD 4					.2	
PAD 5				16.9		

(POLICY OPTION)

CRUDE OIL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
PROD	106.7	880.1	5,918.6	703.3	1,090.7	8,699.4
RUNS	-1,443.9	-3,314.3	-5,011.0	-437.3	-1,909.1	-12,115.7
% CAPAC.	81.4	81.7	80.7	79.7	80.4	80.9
RERUN	140.3	9.6	48.1	.3	67.9	266.2
IMPORTS	1,229.3	662.5	595.1	62.8	719.6	3,269.2
SHIPMENTS	105.7	25.4	1,656.1	342.0	.2	2,129.3
RECEIPTS	121.0	1,880.8	110.4	.2	16.9	2,129.3
FROM INV.	-47.6	-93.3	-5.0	12.7	14.3	-119.0
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	19.4	67.6	110.7	14.4	38.8	250.8
CLOSE MMB	23.8	76.2	111.2	13.2	37.4	261.8
-TO-						
PAD 1		24.8	96.2			
PAD 2	.2		1,559.9	320.8		
PAD 3	105.5	.6		4.3		
PAD 4					.2	
PAD 5				16.9		

NGL
Policy Option

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
PROD	22.1	243.7	1,335.9	43.4	30.8	1,676.0
BLEND	-247.6	-956.2	-995.7		-25.0	-2,224.6
IMPORTS		55.1	234.9	12.4		302.4
SHIPMENTS		143.0	24.7	.8		302.4
RECEIPTS	133.9	624.6	-130.0	-31.8	-5.7	548.7
FROM INV.	91.6					
SUPPLY SHORT		.0	.0	.0	.0	
OPEN MMB	4.0	33.1	60.2	.8	1.8	99.9
CLOSE MMB	1.4	15.6	63.8	1.7	2.0	84.5
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0			
PAD 3		12.3		12.4		
PAD 4			.8			
NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
PROD	22.1	245.2	1,334.6	43.2	30.8	1,676.0
BLEND	-156.0	-333.2	-983.4	-43.6	-65.0	-1,581.4
IMPORTS		55.1	234.9	12.6		302.6
SHIPMENTS		143.2	24.7	.8		302.6
RECEIPTS	133.9	624.6	-140.9	12.2	34.2	-94.5
FROM INV.						
SUPPLY SHORT	.0		.0	.0	.0	.0
OPEN MMB	1.4	15.6	63.8	1.7	2.0	84.5
CLOSE MMB	1.4	15.6	68.2	1.3	.9	87.4
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0	.2		
PAD 3		12.3		12.4		
PAD 4			.8			

(POLICY OPTION)

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
PROD BLEND	22.0	231.2	1,330.1	43.1	30.7	1,657.0
IMPORTS SHIPMENTS RECEIPTS FROM INV.	-178.6	-319.2	-1,301.7	-11.2		-1,810.9
		55.1	234.9	12.6		302.6
	133.9	143.2	24.7	.8		302.6
	22.7		181.9	-20.0	-30.6	154.0
SUPPLY SHORT	.0		.0	.0	.0	.0
OPEN MMB	1.4	15.6	68.2	1.3	.9	87.4
CLOSE MMB	.7	15.6	62.7	1.9	1.8	82.8
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0	.2		
PAD 3		12.3		12.4		
PAD 4			.8			

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
PROD BLEND	22.0	233.6	1,328.4	43.1	29.7	1,656.8
IMPORTS SHIPMENTS RECEIPTS FROM INV.	-133.9	-321.7	-664.0		-25.1	-1,144.9
		55.1	234.9	12.6		302.6
	133.9	143.2	24.7	.8		302.6
	-21.9		-454.1	-31.2	-4.5	-511.9
SUPPLY SHORT	.0					.0
OPEN MMB	.7	15.6	62.7	1.9	1.8	82.8
CLOSE MMB	1.4	15.6	76.8	2.9	2.0	98.7
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0	.2		
PAD 3		12.3		12.4		
PAD 4			.8			

(POLICY OPTION)

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
PROD BLEND	22.0	236.1	1,326.1	43.1	29.7	1,657.0
IMPORTS SHIPMENTS RECEIPTS FROM INV.	-155.9	-324.2	-738.6	-31.2	-29.6	-1,279.7
		55.1	234.9	12.6		302.6
	133.9	143.2	24.7	.8		302.6
			-377.2			-377.2
SUPPLY SHORT	.0		.0	.0		.0
OPEN MMB	1.4	15.6	76.8	2.9	2.0	98.7
CLOSE MMB	1.4	15.6	88.1	2.9	2.0	110.0
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0	.2		
PAD 3		12.3		12.4		
PAD 4			.8			

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
PROD BLEND	22.0	230.8	1,325.2	43.0	29.0	1,650.0
IMPORTS SHIPMENTS RECEIPTS FROM INV.	-155.9	-321.3	-1,184.9	-33.2	-41.1	-1,736.5
		52.6	234.9	12.6		300.1
	133.9	143.2	22.2	.8		300.1
			72.4	2.1	12.1	86.6
SUPPLY SHORT	.0			.0		.0
OPEN MMB	1.4	15.6	88.1	2.9	2.0	110.0
CLOSE MMB	1.4	15.6	81.4	2.7	.9	102.0
-TO-						
PAD 1		42.8	91.1			
PAD 2			143.0	.2		
PAD 3		9.8		12.4		
PAD 4			.8			

(POLICY OPTION)

NGL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
PROD BLEND	21.4	233.6	1,329.5	43.2	28.4	1,656.1
IMPORTS SHIPMENTS RECEIPTS FROM INV.	-163.9	-385.9	-1,054.1	-46.2	-16.3	-1,666.6
		48.6	292.7	12.6		353.9
	133.9	201.0	18.2	.8		353.9
	8.6		-.8	14.9	-12.1	10.6
SUPPLY SHORT	.0			.0	.0	.0
OPEN MMB	1.4	15.6	81.4	2.7	.9	102.0
CLOSE MMB	.6	15.6	81.5	1.3	2.0	101.1
-TO-						
PAD 1		42.8	91.1			
PAD 2			200.8	.2		
PAD 3		5.8		12.4		
PAD 4			.8			

UNFINISHED OILS
Policy Option

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
BLEND IMPORTS SHIPMENTS RECEIPTS FROM INV.	-238.0	-61.1	39.2	.7	-142.0	-401.3
	53.0	3.7	20.1		44.6	121.4
			142.1			142.1
	141.4				.7	142.1
	43.6	57.5	82.8	-.7	96.7	279.9
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	14.1	19.8	38.6	2.9	25.7	101.2
CLOSE MMB	12.9	18.2	36.3	2.9	23.0	93.3
-TO-						
PAD 1			141.4			
PAD 5			.7			

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
BLEND IMPORTS SHIPMENTS RECEIPTS FROM INV.	-34.3	41.4	23.7	-5.1	-53.8	-28.2
	106.0	7.3	53.5		89.3	256.2
			29.3			29.3
	25.2	3.4			.7	29.3
	-96.8	-52.1	-47.9	5.2	-36.0	-227.9
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	12.9	18.2	36.3	2.9	23.0	93.3
CLOSE MMB	15.9	19.8	37.8	2.8	24.1	100.4
-TO-						
PAD 1			25.2			
PAD 2			3.4			
PAD 5			.7			

(POLICY OPTION)

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
BLEND	-131.1	64.2	19.3	-.5	6.4	-41.7
IMPORTS	97.6	7.1	50.4		70.3	225.5
SHIPMENTS			25.9			25.9
RECEIPTS	25.2				.7	25.9
FROM INV.	8.3	-71.3	-43.8	.6	-77.4	-183.6
	-----	-----	-----	-----	-----	-----
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	15.9	19.8	37.8	2.8	24.1	100.4
CLOSE MMB	15.7	22.0	39.1	2.7	26.5	105.9

-TO-
PAD 1 25.2
PAD 5 .7

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
BLEND	-145.7	4.7	-3.7	7.2	-65.2	-202.8
IMPORTS	109.9	7.1	56.7		79.1	252.8
SHIPMENTS			29.3			29.3
RECEIPTS	25.2	3.4			.7	29.3
FROM INV.	10.7	-15.2	-23.6	-7.1	-14.5	-49.9
	-----	-----	-----	-----	-----	-----
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	15.7	22.0	39.1	2.7	26.5	105.9
CLOSE MMB	15.3	22.4	39.8	3.0	26.9	107.5

-TO-
PAD 1 25.2
PAD 2 3.4
PAD 5 .7

(POLICY OPTION)

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
BLEND	-112.0	-9.5	1.4	3.1	-63.2	-180.3
IMPORTS	97.6	7.1	50.4		70.3	225.5
SHIPMENTS			25.9			25.9
RECEIPTS	25.2				.7	25.9
FROM INV.	-10.8	2.5	-25.9	-3.0	-7.7	-45.1
	-----	-----	-----	-----	-----	-----
SUPPLY SHORT	.0	.0	.0	.0	.0	.0
OPEN MMB	15.3	22.4	39.8	3.0	26.9	107.5
CLOSE MMB	15.7	22.4	40.6	3.1	27.2	108.8

-TO-
PAD 1 25.2
PAD 5 .7

UNFINISHED	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
BLEND	-133.4	-23.2	-61.4	-3.7	-50.3	-272.2
IMPORTS	99.2	6.3	63.0		50.5	219.1
SHIPMENTS			29.3			29.3
RECEIPTS	25.2	3.4			.7	29.3
FROM INV.	9.0	13.5	27.7	3.8	-.9	53.2
	-----	-----	-----	-----	-----	-----
SUPPLY SHORT		.0	.0		.0	.0
OPEN MMB	15.7	22.4	40.6	3.1	27.2	108.8
CLOSE MMB	14.8	21.1	38.0	2.7	27.2	103.9

-TO-
PAD 1 25.2
PAD 2 3.4
PAD 5 .7

(POLICY OPTION)

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
UNFINISHED						
BLEND	-140.2	-9.5	-48.0	-.3	-67.8	-266.1
IMPORTS	120.4	7.3	64.0		43.2	234.9
SHIPMENTS			25.9			25.9
RECEIPTS	25.2				.7	25.9
FROM INV.	-5.2	2.2	9.9	.3	24.0	31.2
	-----	-----	-----	-----	-----	-----
SUPPLY		.0	.0	.0	.0	.0
SHORT						
OPEN MMB	14.8	21.1	38.0	2.7	27.2	103.9
CLOSE MMB	15.3	20.9	37.1	2.7	25.0	101.1
			25.2			
-TO-			.7			
PAD 1						
PAD 5						

MOTOR GASOLINE
Policy Option

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
GASOLINE						
YIELD	585.4	1,594.2	2,072.4	201.4	756.5	5,210.1
% YIELD	44.3	52.9	44.3	49.3	42.2	46.4
BLEND	69.5	608.0	384.2		27.3	1,089.0
IMPORTS						
SHIPMENTS	90.3	155.9	1,673.4	27.5		1,947.2
RECEIPTS	1,484.8	310.5	89.1	19.2	43.5	1,947.2
FROM INV.	-41.2	-198.9	33.0	-20.7	59.9	-168.0
	-----	-----	-----	-----	-----	-----
SUPPLY	2,008.3	2,157.8	905.3	172.4	887.2	6,131.0
DEMAND	2,008.3	2,157.8	905.3	172.4	887.2	6,131.0
SHORT						
OPEN MMB	63.8	74.7	60.5	8.2	28.9	236.1
CLOSE MMB	65.0	80.2	59.6	8.8	27.2	240.8
-TO-						
PAD 1		55.2	1,429.6			
PAD 2	90.3		210.7	9.5		
PAD 3		89.1				
PAD 4		11.6	7.6			
PAD 5			25.5	18.0		

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
GASOLINE						
YIELD	589.3	1,632.7	2,129.2	205.1	784.2	5,340.5
% YIELD	42.4	52.0	44.3	49.0	42.7	46.1
BLEND	43.8	211.9	379.5	29.6	70.7	735.5
IMPORTS						
SHIPMENTS	90.3	148.0	1,746.3	55.7		2,040.3
RECEIPTS	1,557.7	320.7	89.1	11.3	61.5	2,040.3
FROM INV.	158.6	89.3	2.3	-16.7	-1.5	232.0
	-----	-----	-----	-----	-----	-----
SUPPLY	2,259.1	2,106.7	853.8	173.5	914.9	6,308.0
DEMAND	2,259.1	2,106.7	853.8	173.5	914.9	6,308.0
SHORT						
OPEN MMB	65.0	80.2	59.6	8.8	27.2	240.8
CLOSE MMB	60.0	77.5	59.5	9.3	27.3	233.6

-TO-						
PAD 1		55.2	1,502.5			
PAD 2	90.3		210.7	19.7		
PAD 3		89.1				
PAD 4		3.7	7.6			
PAD 5			25.5	36.0		



(POLICY OPTION)

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	597.5	1,657.8	2,182.5	212.4	809.5	5,459.8
% YIELD	42.4	52.1	44.3	49.1	42.7	46.1
BLEND	50.1	203.0	502.4	7.6		763.1
IMPORTS						
SHIPMENTS	90.3	148.0	1,782.2	55.7		2,076.2
RECEIPTS	1,593.6	320.7	89.1	11.3	61.5	2,076.2
FROM INV.	11.9	127.4	-76.8	19.0	112.5	194.1
SUPPLY	2,162.8	2,160.9	915.0	194.6	983.5	6,417.0
DEMAND	2,162.8	2,160.9	915.0	194.6	983.5	6,417.0
SHORT						
OPEN MMB	60.0	77.5	59.5	9.3	27.3	233.6
CLOSE MMB	59.7	73.7	61.8	8.7	23.9	227.8

-TO-

PAD 1		55.2	1,538.4		
PAD 2	90.3		210.7	19.7	
PAD 3		89.1			
PAD 4		3.7	7.6		
PAD 5			25.5	36.0	

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	612.9	1,726.9	2,237.6	216.9	816.1	5,610.5
% YIELD	42.4	52.9	44.3	49.2	42.7	46.3
BLEND	37.6	204.6	256.3		27.3	525.7
IMPORTS						
SHIPMENTS	90.3	148.0	1,855.9	55.7		2,149.9
RECEIPTS	1,667.3	320.7	89.1	11.3	61.5	2,149.9
FROM INV.	-24.0	13.1	199.2	21.3	41.4	250.8
SUPPLY	2,203.5	2,117.3	926.2	193.8	946.3	6,387.0
DEMAND	2,203.5	2,117.3	926.2	193.8	946.3	6,387.0
SHORT						
OPEN MMB	59.7	73.7	61.8	8.7	23.9	227.8
CLOSE MMB	60.4	73.3	55.7	8.0	22.6	220.0

-TO-

PAD 1		55.2	1,612.1		
PAD 2	90.3		210.7	19.7	
PAD 3		89.1			
PAD 4		3.7	7.6		
PAD 5			25.5	36.0	

(POLICY OPTION)

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	641.9	1,829.3	2,292.6	225.0	851.7	5,840.6
% YIELD	42.4	53.5	44.3	49.2	42.5	46.5
BLEND	43.8	206.1	285.0	21.2	32.2	588.4
IMPORTS						
SHIPMENTS	90.3	102.4	1,704.4	55.7		1,952.8
RECEIPTS	1,515.8	320.7	43.5	11.3	61.5	1,952.8
FROM INV.	93.5	41.6	44.8	21.2	31.8	233.0
SUPPLY	2,204.7	2,295.4	961.6	223.0	977.2	6,662.0
DEMAND	2,204.7	2,295.4	961.6	223.0	977.2	6,662.0
SHORT						
OPEN MMB	60.4	73.3	55.7	8.0	22.6	220.0
CLOSE MMB	57.6	72.0	54.3	7.4	21.7	213.0

-TO-

PAD 1		55.2	1,460.6		
PAD 2	90.3		210.7	19.7	
PAD 3		43.5			
PAD 4		3.7	7.6		
PAD 5			25.5	36.0	

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	611.2	1,792.6	2,268.7	218.0	878.6	5,769.2
% YIELD	42.4	55.0	44.9	49.5	46.1	47.7
BLEND	43.7	204.3	457.3	22.6	44.7	772.6
IMPORTS						
SHIPMENTS	90.3	109.4	1,852.6	55.7		2,108.0
RECEIPTS	1,664.0	320.7	50.5	11.3	61.5	2,108.0
FROM INV.	17.5	85.2	-56.3	26.2	-9.5	62.9
SUPPLY	2,246.2	2,293.4	867.5	222.4	975.3	6,604.7
DEMAND	2,246.2	2,293.4	867.5	222.4	975.3	6,604.7
SHORT						
OPEN MMB	57.6	72.0	54.3	7.4	21.7	213.0
CLOSE MMB	56.0	64.2	59.5	5.0	22.5	207.2

-TO-

PAD 1		55.2	1,608.8		
PAD 2	90.3		210.7	19.7	
PAD 3		50.5			
PAD 4		3.7	7.6		
PAD 5			25.5	36.0	

(POLICY OPTION)

GASOLINE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	612.2	1,776.5	2,229.9	215.2	862.9	5,696.7
% YIELD	42.4	53.6	44.5	49.2	45.2	47.0
BLEND	46.0	245.4	406.8	31.4	17.7	747.3
IMPORTS						
SHIPMENTS	90.3	102.9	1,814.4	55.7		2,063.2
RECEIPTS	1,619.3	320.7	50.5	11.3	61.5	2,063.2
FROM INV.	-48.9	-13.3	-9.9	-18.8	-16.0	-107.2
SUPPLY	2,138.2	2,226.3	862.9	183.3	926.0	6,336.7
DEMAND	2,138.2	2,226.3	862.9	183.3	926.0	6,336.7
SHORT						
OPEN MMB	56.0	64.2	59.5	5.0	22.5	207.2
CLOSE MMB	60.5	65.4	60.4	6.7	24.0	217.1
-TO-						
PAD 1		48.7	1,570.6			
PAD 2	90.3		210.7	19.7		
PAD 3		50.5				
PAD 4		3.7	7.6			
PAD 5			25.5	36.0		

DISTILLATE
Policy Option

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	313.2	692.3	1,094.7	95.4	211.5	2,407.2
% YIELD	23.7	23.0	23.4	23.4	11.8	21.5
BLEND			1.9			1.9
IMPORTS						
SHIPMENTS	27.9	13.9	1,139.6	28.4		1,209.8
RECEIPTS	1,086.6	84.4	9.5	2.1	27.2	1,209.8
FROM INV.	856.5	318.4	334.6	10.8	47.6	1,567.9
SUPPLY	2,228.4	1,081.2	301.1	80.0	286.3	3,977.0
DEMAND	2,228.4	1,081.2	301.1	80.0	286.3	3,977.0
SHORT						
OPEN MMB	70.2	57.5	40.6	4.0	13.3	185.6
CLOSE MMB	46.2	48.6	31.2	3.7	12.0	141.7
-TO-						
PAD 1		3.6	1,083.0			
PAD 2	27.9		44.0	12.5		
PAD 3		9.5				
PAD 4		.8	1.3			
PAD 5			11.3	15.9		

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	400.3	770.3	1,125.5	101.1	233.2	2,630.3
% YIELD	28.8	24.6	23.4	24.1	12.7	22.7
BLEND			1.9			1.9
IMPORTS		.9	3.9		1.2	182.9
SHIPMENTS	27.9	32.1	1,140.4	22.4		1,222.8
RECEIPTS	1,086.6	79.0	27.2	2.6	27.4	1,222.8
FROM INV.	275.0	168.7	265.1	4.0	29.0	741.9
SUPPLY	1,910.8	986.8	283.2	85.3	290.9	3,557.0
DEMAND	1,910.8	986.8	283.2	85.3	290.9	3,557.0
SHORT						
OPEN MMB	46.2	48.6	31.2	3.7	12.0	141.7
CLOSE MMB	37.7	43.4	23.0	3.6	11.1	118.7
-TO-						
PAD 1		3.6	1,083.0			
PAD 2	27.9		44.0	7.1		
PAD 3		27.2				
PAD 4		1.3	1.3			
PAD 5			12.1	15.3		

(POLICY OPTION)

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	405.9	776.4	1,152.9	102.8	240.8	2,678.7
% YIELD	28.8	24.4	23.4	23.8	12.7	22.6
BLEND			2.5			2.5
IMPORTS	54.7					54.7
SHIPMENTS	27.9	29.4	1,068.4	20.1		1,145.8
RECEIPTS	1,014.6	79.0	24.5	2.6	25.1	1,145.8
FROM INV.	4.8	74.5	27.1	8.4	35.3	150.2
SUPPLY	1,452.0	900.5	138.6	93.7	301.2	2,886.0
DEMAND	1,452.0	900.5	138.6	93.7	301.2	2,886.0
SHORT						
OPEN MMB	37.7	43.4	23.0	3.6	11.1	118.7
CLOSE MMB	37.5	41.2	22.2	3.3	10.0	114.2

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		3.6	1,011.0		
PAD 2	27.9		44.0	7.1	
PAD 3		24.5			
PAD 4		1.3	1.3		
PAD 5			12.1	13.0	

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	416.3	753.7	1,181.9	103.6	242.7	2,698.3
% YIELD	28.8	23.1	23.4	23.5	12.7	22.3
BLEND			1.3			1.3
IMPORTS	29.4	1.6	4.9		1.0	36.9
SHIPMENTS	27.9	31.0	785.8	20.5		865.2
RECEIPTS	732.0	79.0	26.1	2.6	25.5	865.2
FROM INV.	-184.2	-79.8	-34.1	.7	-17.8	-315.4
SUPPLY	965.6	723.4	394.2	86.4	251.4	2,421.0
DEMAND	965.6	723.4	394.2	86.4	251.4	2,421.0
SHORT						
OPEN MMB	37.5	41.2	22.2	3.3	10.0	114.2
CLOSE MMB	43.2	43.6	23.2	3.3	10.6	124.0

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		3.6	728.4		
PAD 2	27.9		44.0	7.1	
PAD 3		26.1			
PAD 4		1.3	1.3		
PAD 5			12.1	13.4	

(POLICY OPTION)

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	436.0	757.1	1,211.0	107.5	258.3	2,769.9
% YIELD	28.8	22.1	23.4	23.5	12.9	22.0
BLEND			1.4			1.4
IMPORTS	26.4					26.4
SHIPMENTS	35.9	30.2	666.6	19.1		751.8
RECEIPTS	610.9	87.1	27.2	2.6	23.9	751.8
FROM INV.	-192.6	-152.8	-327.8	-8.0	-36.3	-717.6
SUPPLY	844.8	661.2	245.1	83.0	245.9	2,080.0
DEMAND	844.8	661.2	245.1	83.0	245.9	2,080.0
SHORT						
OPEN MMB	43.2	43.6	23.2	3.3	10.6	124.0
CLOSE MMB	49.0	48.2	33.0	3.5	11.7	145.5

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		1.7	609.2		
PAD 2	35.9		44.0	7.2	
PAD 3		27.2			
PAD 4		1.3	1.3		
PAD 5			12.1	11.8	

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	415.2	674.7	1,185.7	104.9	238.2	2,618.6
% YIELD	28.8	20.7	23.5	23.8	12.5	21.6
BLEND			2.3			2.3
IMPORTS	103.2	6.9	29.1		13.8	152.8
SHIPMENTS	31.9	12.0	929.0	21.7		994.6
RECEIPTS	788.7	170.6	9.5	2.6	23.2	994.6
FROM INV.	-496.7	-188.1	-13.5	-2.2	-19.4	-720.1
SUPPLY	778.4	651.8	283.9	83.6	255.7	2,053.5
DEMAND	778.4	651.8	283.9	83.6	255.7	2,053.5
SHORT						
OPEN MMB	49.0	48.2	33.0	3.5	11.7	145.5
CLOSE MMB	94.7	65.5	34.3	3.7	13.5	211.8

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		1.2	787.5		
PAD 2	31.9		131.3	7.4	
PAD 3		9.5			
PAD 4		1.3	1.3		
PAD 5			8.9	14.3	

(POLICY OPTION)

DISTILLATE	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	415.9	725.8	1,182.6	102.8	239.7	2,666.7
% YIELD	28.8	21.9	23.6	23.5	12.6	22.0
BLEND			2.0			2.0
IMPORTS	169.3	1.6	20.1	.8	8.7	200.4
SHIPMENTS	33.7	12.0	1,020.2	18.5		1,084.4
RECEIPTS	947.5	84.8	9.5	2.6	40.0	1,084.4
FROM INV.	168.4	164.1	24.6	7.4	9.8	374.3
SUPPLY	1,667.3	964.3	218.6	95.1	298.1	3,243.4
DEMAND	1,667.3	964.3	218.6	95.1	298.1	3,243.4
SHORT						
OPEN MMB	94.7	65.5	34.3	3.7	13.5	211.8
CLOSE MMB	79.2	50.4	32.0	3.1	12.6	177.3

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		1.2	946.3		
PAD 2	33.7		44.0	7.1	
PAD 3		9.5			
PAD 4		1.3	1.3		
PAD 5			28.6	11.4	

RESIDUAL
Policy Option

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	118.9	158.7	196.5	20.1	338.8	833.1
% YIELD	9.0	5.3	4.2	4.9	18.9	7.4
IMPORTS	1,385.3		13.1		18.4	1,416.9
SHIPMENTS			140.3			140.3
RECEIPTS	119.0	21.3				140.3
FROM INV.	226.1	96.6	47.6	6.4	-1.7	375.0
SUPPLY	1,849.4	276.6	116.9	26.5	355.6	2,625.0
DEMAND	1,849.4	276.6	116.9	26.5	355.6	2,625.0
SHORT						
OPEN MMB	25.2	7.9	9.7	.6	10.9	54.2
CLOSE MMB	18.8	5.2	8.4	.4	10.9	43.7

-TO-	PAD 1	PAD 2
PAD 1		119.0
PAD 2		21.3

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	147.3	185.5	207.6	21.8	297.5	859.7
% YIELD	10.6	5.9	4.3	5.2	16.2	7.4
IMPORTS	1,626.1		19.7			1,645.8
SHIPMENTS			140.3			140.3
RECEIPTS	119.0	21.3				140.3
FROM INV.	-86.0	.1	21.4	-1.9	1.9	-64.5
SUPPLY	1,806.4	206.9	108.4	19.8	299.5	2,441.0
DEMAND	1,806.4	206.9	108.4	19.8	299.5	2,441.0
SHORT						
OPEN MMB	18.8	5.2	8.4	.4	10.9	43.7
CLOSE MMB	21.5	5.2	7.7	.4	10.9	45.7

-TO-	PAD 1	PAD 2
PAD 1		119.0
PAD 2		21.3

(POLICY OPTION)

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	149.4	181.4	206.9	21.2	307.1	866.0
% YIELD	10.6	5.7	4.2	4.9	16.2	7.3
IMPORTS	1,100.5		15.8			1,116.3
SHIPMENTS			140.3			140.3
RECEIPTS FROM INV.	119.0	21.3				140.3
	103.0	-30.9	4.6	-2.2	-34.0	40.3
SUPPLY DEMAND	1,472.0	171.7	87.0	18.9	273.0	2,022.6
SHORT	1,472.0	171.7	87.0	18.9	273.0	2,022.6
OPEN MMB	21.5	5.2	7.7	.4	10.9	45.7
CLOSE MMB	18.4	6.1	7.6	.5	11.9	44.5

-TO-
PAD 1 119.0
PAD 2 21.3

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	153.2	158.6	212.1	20.7	309.6	854.3
% YIELD	10.6	4.9	4.2	4.7	16.2	7.1
IMPORTS	1,100.5		18.1			1,118.6
SHIPMENTS			140.3			140.3
RECEIPTS FROM INV.	119.0	21.3				140.3
	-64.4	-57.4	2.2	-2.9	-54.6	-177.2
SUPPLY DEMAND	1,308.3	122.5	92.2	17.8	255.0	1,795.8
SHORT	1,308.3	122.5	92.2	17.8	255.0	1,795.8
OPEN MMB	18.4	6.1	7.6	.5	11.9	44.5
CLOSE MMB	20.4	7.9	7.5	.6	13.6	50.0

-TO-
PAD 1 119.0
PAD 2 21.3

(POLICY OPTION)

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	160.5	145.2	217.4	21.5	332.6	877.2
% YIELD	10.6	4.2	4.2	4.7	16.6	7.0
IMPORTS	1,059.7		12.1			1,071.8
SHIPMENTS			140.3			140.3
RECEIPTS FROM INV.	119.0	21.3				140.3
	-24.2	-45.4	19.8	-4.5	-79.4	-133.9
SUPPLY DEMAND	1,314.9	121.1	108.9	16.9	253.2	1,815.0
SHORT	1,314.9	121.1	108.9	16.9	253.2	1,815.0
OPEN MMB	20.4	7.9	7.5	.6	13.6	50.0
CLOSE MMB	21.1	9.2	6.9	.7	16.0	54.0

-TO-
PAD 1 119.0
PAD 2 21.3

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	152.8	110.8	232.2	20.1	234.4	750.4
% YIELD	10.6	3.4	4.6	4.6	12.3	6.2
IMPORTS	1,022.6					1,022.6
SHIPMENTS			151.7			151.7
RECEIPTS FROM INV.	119.0	21.3			11.4	151.7
	-14.6	-10.3	-6.8	-3.9	-19.4	-55.3
SUPPLY DEMAND	1,279.8	121.8	73.6	16.2	226.4	1,717.7
SHORT	1,279.8	121.8	73.6	16.2	226.4	1,717.7
OPEN MMB	21.1	9.2	6.9	.7	16.0	54.0
CLOSE MMB	22.5	10.2	7.6	1.1	17.8	59.1

-TO-
PAD 1 119.0
PAD 2 21.3
PAD 5 11.4

(POLICY OPTION)

RESIDUAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	153.1	135.9	245.5	20.6	254.6	809.6
% YIELD	10.6	4.1	4.9	4.7	13.3	6.7
IMPORTS	1,245.7					1,245.7
SHIPMENTS			160.4			160.4
RECEIPTS	119.0	41.4				160.4
FROM INV.	6.7	12.8	-10.2	4.4	48.9	62.5
SUPPLY	1,524.5	190.1	74.9	24.9	303.4	2,117.8
DEMAND	1,524.5	190.1	74.9	24.9	303.4	2,117.8
SHORT						
OPEN MMB	22.5	10.2	7.6	1.1	17.8	59.1
CLOSE MMB	21.9	9.0	8.5	.7	13.3	53.3

-TO-	PAD 1	PAD 2
PAD 1		119.0
PAD 2		41.4

KEROSINE JET
Policy Option

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	27.8	118.2	299.4	12.8	168.5	626.7
% YIELD	2.1	3.9	6.4	3.1	9.4	5.6
IMPORTS	48.3	3.1	8.7		28.3	88.5
SHIPMENTS	9.9		307.6	3.3		320.8
RECEIPTS	286.9	19.9		9.2	4.8	320.8
FROM INV.	-54.4	-5.5	45.2	.8	17.9	3.9
SUPPLY	298.6	135.7	45.6	19.5	219.6	719.0
DEMAND	298.6	135.7	45.6	19.5	219.6	719.0
SHORT						
OPEN MMB	6.4	5.5	6.9	.4	6.2	25.3
CLOSE MMB	7.9	5.6	5.7	.4	5.7	25.2

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1			286.9		
PAD 2	9.9		9.7	.3	
PAD 4			9.2		
PAD 5			1.8	3.0	

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	15.3	113.7	300.6	13.6	170.8	614.0
% YIELD	1.1	3.6	6.3	3.3	9.3	5.3
IMPORTS	60.4	4.2	11.5		42.5	118.6
SHIPMENTS	9.9		257.8	.2		267.9
RECEIPTS	211.9	44.8		9.2	2.0	267.9
FROM INV.	71.2	-.7	-14.8	-1.6	-.6	53.3
SUPPLY	348.8	162.0	39.5	21.0	214.7	786.0
DEMAND	348.8	162.0	39.5	21.0	214.7	786.0
SHORT						
OPEN MMB	7.9	5.6	5.7	.4	5.7	25.2
CLOSE MMB	5.7	5.6	6.1	.4	5.7	23.6

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1			211.9		
PAD 2	9.9		34.9		
PAD 4			9.2		
PAD 5			1.8	.2	

(POLICY OPTION)

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	15.5	117.7	315.3	14.7	176.3	639.6
% YIELD	1.1	3.7	6.4	3.4	9.3	5.4
IMPORTS	68.3	6.3	16.1		35.2	126.0
SHIPMENTS	9.9		280.2	.2		290.3
RECEIPTS	250.8	28.3		9.2	2.0	290.3
FROM INV.	12.6	18.4	-11.3	-1.9	-.2	17.5
SUPPLY	337.3	170.8	39.9	21.8	213.3	783.0
DEMAND	337.3	170.8	39.9	21.8	213.3	783.0
SHORT						
OPEN MMB	5.7	5.6	6.1	.4	5.7	23.6
CLOSE MMB	5.3	5.1	6.5	.5	5.7	23.1

-TO-

PAD 1			250.8		
PAD 2	9.9		18.4		
PAD 4			9.2		
PAD 5			1.8	.2	

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	15.9	129.4	323.3	15.4	177.8	661.8
% YIELD	1.1	4.0	6.4	3.5	9.3	5.5
IMPORTS	60.9	6.3	21.5		35.4	124.2
SHIPMENTS	9.9		277.5	.7		288.1
RECEIPTS	245.8	30.6		9.2	2.5	288.1
FROM INV.	8.3	-1.2	12.4	-4.4	8.1	23.1
SUPPLY	321.0	165.1	79.7	19.5	223.7	809.0
DEMAND	321.0	165.1	79.7	19.5	223.7	809.0
SHORT						
OPEN MMB	5.3	5.1	6.5	.5	5.7	23.1
CLOSE MMB	5.1	5.1	6.1	.6	5.5	22.3

-TO-

PAD 1			245.8		
PAD 2	9.9		20.7		
PAD 4			9.2		
PAD 5			1.8	.7	

(POLICY OPTION)

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	16.7	142.2	331.2	16.0	183.6	689.6
% YIELD	1.1	4.2	6.4	3.5	9.2	5.5
IMPORTS	45.7	3.1	13.5		35.4	97.8
SHIPMENTS	5.9		273.2	3.5		282.5
RECEIPTS	252.5	15.9		9.2	5.0	282.5
FROM INV.	6.4	-5.2	1.5	1.0	11.9	15.6
SUPPLY	315.3	155.9	73.0	22.8	235.9	803.0
DEMAND	315.3	155.9	73.0	22.8	235.9	803.0
SHORT						
OPEN MMB	5.1	5.1	6.1	.6	5.5	22.3
CLOSE MMB	4.9	5.3	6.1	.6	5.1	21.9

-TO-

PAD 1			252.5		
PAD 2	5.9		9.7	.3	
PAD 4			9.2		
PAD 5			1.8	3.2	

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	15.9	117.3	286.0	14.3	177.3	610.8
% YIELD	1.1	3.6	5.7	3.2	9.3	5.0
IMPORTS	107.5	11.9	17.5		54.2	191.1
SHIPMENTS	9.9		256.6	1.5		268.0
RECEIPTS	210.7	45.1		9.2	3.0	268.0
FROM INV.	-2.6	-9.6	5.4	1.5	-3.7	-9.1
SUPPLY	321.6	164.6	52.2	23.5	230.7	792.7
DEMAND	321.6	164.6	52.2	23.5	230.7	792.7
SHORT						
OPEN MMB	4.9	5.3	6.1	.6	5.1	21.9
CLOSE MMB	5.1	6.2	5.6	.4	5.4	22.7

-TO-

PAD 1			210.7		
PAD 2	9.9		34.9	.3	
PAD 4			9.2		
PAD 5			1.8	1.2	

KERO-JET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	15.9	139.2	280.6	15.3	177.5	628.6
% YIELD	1.1	4.2	5.6	3.5	9.3	5.2
IMPORTS	104.7	9.2	20.2		47.2	181.3
SHIPMENTS	6.4		270.5	3.2		280.1
RECEIPTS	248.1	18.0		9.2	4.8	280.1
FROM INV.	-13.5	6.1	2.6	1.0	7.5	3.6
SUPPLY	348.8	172.5	32.9	22.3	236.9	813.5
DEMAND	348.8	172.5	32.9	22.3	236.9	813.5
SHORT						
OPEN MMB	5.1	6.2	5.6	.4	5.4	22.7
CLOSE MMB	6.4	5.6	5.3	.3	4.8	22.4

-TO-

PAD 1		248.1		
PAD 2	6.4	11.4	.3	
PAD 4		9.2		
PAD 5		1.8	3.0	

NAPHTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	4.0	36.4	51.5	8.1	64.5	164.4
% YIELD	.3	1.2	1.1	2.0	3.6	1.5
IMPORTS	39.4				12.6	52.0
SHIPMENTS	4.0	2.6	10.8	2.6		20.0
RECEIPTS	10.1	6.4	2.6		.9	20.0
FROM INV.	-4.7	-7.5	-20.8	.3	6.2	-26.6
SUPPLY	44.7	32.7	22.4	5.7	84.2	189.7
DEMAND	47.9	34.8	36.0	6.1	84.2	209.0
SHORT	3.2	2.1	13.6	.4		19.3
% DEMAND	6.7	6.1	37.7	6.2		9.2
OPEN MMB	.3	1.6	1.8	.3	1.6	5.6
CLOSE MMB	.4	1.8	2.4	.3	1.4	6.3

-TO-

PAD 1			10.1	
PAD 2	4.0			2.4
PAD 3		2.6		
PAD 5			.7	.2

NAPHTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	4.2	27.3	62.1	9.1	55.1	157.7
% YIELD	.3	.9	1.3	2.2	3.0	1.4
IMPORTS	39.4				15.7	55.1
SHIPMENTS	4.0		20.0	2.1		26.1
RECEIPTS	16.3	8.9			.9	26.1
FROM INV.	-2.3	-2.8	-7.2	-1.3	-2.5	-16.4
SUPPLY	53.5	33.3	34.8	5.6	69.2	196.4
DEMAND	58.3	36.5	38.0	6.1	69.2	208.0
SHORT	4.8	3.2	3.1	.5		11.6
% DEMAND	8.2	8.7	8.2	7.9		5.6
OPEN MMB	.4	1.8	2.4	.3	1.4	6.3
CLOSE MMB	.5	1.9	2.6	.3	1.5	6.9

-TO-

PAD 1			16.3	
PAD 2	4.0		3.0	1.9
PAD 5			.7	.2



(POLICY OPTION)

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	4.2	28.6	54.2	9.5	56.9	153.4
% YIELD	.3	.9	1.1	2.2	3.0	1.3
IMPORTS	44.6				19.8	64.4
SHIPMENTS	4.0		14.3	4.7		23.0
RECEIPTS	13.6	6.2			3.2	23.0
FROM INV.	2.9	9.9	17.7	1.3	2.1	33.9
SUPPLY	61.3	44.8	57.5	6.1	81.9	251.7
DEMAND	66.1	49.0	61.8	6.1	81.9	265.0
SHORT	4.8	4.2	4.3			13.3
% DEMAND	7.3	8.7	6.9			5.0
OPEN MMB	.5	1.9	2.6	.3	1.5	6.9
CLOSE MMB	.4	1.6	2.1	.3	1.5	5.8
-TO-						
PAD 1			13.6			
PAD 2	4.0			2.2		
PAD 5			.7	2.5		

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	4.3	36.3	55.6	9.7	57.3	163.2
% YIELD	.3	1.1	1.1	2.2	3.0	1.3
IMPORTS	44.6				17.3	61.9
SHIPMENTS	4.0	1.8	15.2	3.8		24.9
RECEIPTS	14.5	6.2	1.8		2.3	24.9
FROM INV.	3.2	4.6	-2.1	1.0	1.1	7.8
SUPPLY	62.7	45.3	40.0	6.9	78.1	232.9
DEMAND	62.7	46.3	40.0	6.9	78.1	234.0
SHORT		1.1				1.1
% DEMAND		2.3				.5
OPEN MMB	.4	1.6	2.1	.3	1.5	5.8
CLOSE MMB	.3	1.5	2.1	.2	1.4	5.6
-TO-						
PAD 1			14.5			
PAD 2	4.0			2.2		
PAD 3		1.8				
PAD 5			.7	1.6		

(POLICY OPTION)

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	4.5	43.2	56.9	10.1	59.9	174.7
% YIELD	.3	1.3	1.1	2.2	3.0	1.4
IMPORTS	33.5				16.1	49.6
SHIPMENTS		4.5	28.7	2.2		35.3
RECEIPTS	29.9	1.5	2.6		1.4	35.3
FROM INV.	2.6	6.0	5.6	1.2	-3.6	11.7
SUPPLY	70.5	46.2	36.4	9.1	73.7	236.0
DEMAND	70.5	46.2	36.4	9.1	73.7	236.0
SHORT						
OPEN MMB	.3	1.5	2.1	.2	1.4	5.6
CLOSE MMB	.2	1.3	2.0	.2	1.5	5.2
-TO-						
PAD 1		1.9	28.0			
PAD 2				1.5		
PAD 3		2.6				
PAD 5			.7	.7		

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	4.3	42.4	107.9	9.6	70.5	234.7
% YIELD	.3	1.3	2.1	2.2	3.7	1.9
IMPORTS	22.0				3.7	25.7
SHIPMENTS			59.0	1.2		60.2
RECEIPTS	52.0	4.1			4.1	60.2
FROM INV.	-7.5	-.3	-8.4	-1.0	-5.3	-22.6
SUPPLY	70.8	46.2	40.5	7.3	73.0	237.7
DEMAND	70.8	46.2	40.5	7.3	73.0	237.7
SHORT						
OPEN MMB	.2	1.3	2.0	.2	1.5	5.2
CLOSE MMB	.9	1.3	2.8	.3	2.0	7.3
-TO-						
PAD 1			52.0			
PAD 2			3.1	1.0		
PAD 5			3.9	.2		

(POLICY OPTION)

NAPTHAJET	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	4.3	43.1	110.2	9.6	67.1	234.4
% YIELD	.3	1.3	2.2	2.2	3.5	1.9
IMPORTS	17.2				8.9	26.1
SHIPMENTS	4.0		62.7	3.1		69.8
RECEIPTS	48.7	5.7			15.4	69.8
FROM INV.	5.7	-2.6	2.6	.2	2.5	8.3
	-----	-----	-----	-----	-----	-----
SUPPLY	71.9	46.1	50.2	6.7	93.9	268.8
DEMAND	71.9	46.1	50.2	6.7	93.9	268.8
SHORT						
OPEN MMB	.9	1.3	2.8	.3	2.0	7.3
CLOSE MMB	.4	1.6	2.5	.3	1.8	6.6

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1			48.7		
PAD 2	4.0			1.7	
PAD 5			14.0	1.4	

PETROCHEMICAL FEEDSTOCKS
Policy Option

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	17.2	28.2	243.3	.8	14.3	303.8
% YIELD	1.3	.9	5.2	.2	.8	2.7
IMPORTS	3.1		21.3			24.4
SHIPMENTS			15.8			15.8
RECEIPTS	6.8	8.2			.8	15.8
FROM INV.	-3.2	-.8	1.4	-.2	.7	-2.2
	-----	-----	-----	-----	-----	-----
SUPPLY	23.8	35.5	250.2	.6	15.9	326.0
DEMAND	23.8	35.5	250.2	.6	20.9	331.0
SHORT					5.0	5.0
% DEMAND					24.0	1.5
OPEN MMB	.0	.4	1.9		.6	2.9
CLOSE MMB	.1	.4	1.9	.0	.6	3.0

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1			6.8		
PAD 2			8.2		
PAD 5			.8		

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	26.4	28.2	251.4	.8	25.7	332.5
% YIELD	1.9	.9	5.2	.2	1.4	2.9
IMPORTS			8.6			8.6
SHIPMENTS			11.9			11.9
RECEIPTS	2.7	9.2				11.9
FROM INV.	-2.1	-.1	-1.1	.1	-7.7	-11.1
	-----	-----	-----	-----	-----	-----
SUPPLY	26.9	37.3	247.0	.9	17.9	330.0
DEMAND	26.9	37.3	247.0	.9	17.9	330.0
SHORT						
OPEN MMB	.1	.4	1.9	.0	.6	3.0
CLOSE MMB	.2	.4	1.9	.0	.8	3.3

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1			2.7		
PAD 2			9.2		

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	26.8	28.6	256.2	.8	26.5	339.0
% YIELD	1.9	.9	5.2	.2	1.4	2.9
IMPORTS			5.3			5.3
SHIPMENTS			12.2			12.2
RECEIPTS	2.7	9.5				12.2
FROM INV.	-7.9	-1.2	-1.7	-.1	-.1	-11.2
	-----	-----	-----	-----	-----	-----
SUPPLY	21.5	36.9	247.5	.7	26.4	333.0
DEMAND	21.5	36.9	247.5	.7	26.4	333.0
SHORT						
OPEN MMB	.2	.4	1.9	.0	.8	3.3
CLOSE MMB	.4	.5	2.0	.0	.8	3.7
-TO-						
PAD 1			2.7			
PAD 2			9.5			

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	27.5	29.4	262.7	.9	26.8	347.1
% YIELD	1.9	.9	5.2	.2	1.4	2.9
IMPORTS						
SHIPMENTS			13.8			13.8
RECEIPTS	2.7	11.1				13.8
FROM INV.	-5.5	-3.2	-6.1	-.2	-2.9	-18.1
	-----	-----	-----	-----	-----	-----
SUPPLY	24.6	37.3	242.7	.6	23.8	329.0
DEMAND	24.6	37.3	242.7	.6	23.8	329.0
SHORT						
OPEN MMB	.4	.5	2.0	.0	.8	3.7
CLOSE MMB	.6	.6	2.2	.0	.9	4.2
-TO-						
PAD 1			2.7			
PAD 2			11.1			

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	28.8	30.8	269.1	.9	27.7	357.3
% YIELD	1.9	.9	5.2	.2	1.4	2.8
IMPORTS						
SHIPMENTS			5.7			5.7
RECEIPTS	2.7	3.0				5.7
FROM INV.	-7.8	5.2	-25.3	-.2	-1.1	-29.2
	-----	-----	-----	-----	-----	-----
SUPPLY	23.6	39.1	238.1	.7	26.6	328.0
DEMAND	23.6	39.1	238.1	.7	26.6	328.0
SHORT						
OPEN MMB	.6	.6	2.2	.0	.9	4.2
CLOSE MMB	.8	.4	2.9	.0	.9	5.1
-TO-						
PAD 1			2.7			
PAD 2			3.0			

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	27.4	42.4	269.6	.9	24.8	365.0
% YIELD	1.9	1.3	5.3	.2	1.3	3.0
IMPORTS						
SHIPMENTS			9.8			9.8
RECEIPTS	2.7	7.1				9.8
FROM INV.	-5.7	-11.8	-24.6	-.1	-.6	-42.9
	-----	-----	-----	-----	-----	-----
SUPPLY	24.3	37.7	235.1	.7	24.2	322.0
DEMAND	24.3	37.7	235.1	.7	24.2	322.0
SHORT						
OPEN MMB	.8	.4	2.9	.0	.9	5.1
CLOSE MMB	1.4	1.5	5.2	.0	1.0	9.1
-TO-						
PAD 1			2.7			
PAD 2			7.1			

(POLICY OPTION)

PETROCHEM	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	27.4	29.8	270.6	.9	25.3	354.1
% YIELD	1.9	.9	5.4	.2	1.3	2.9
IMPORTS						
SHIPMENTS			3.7			3.7
RECEIPTS	2.7	1.0				3.7
FROM INV.	-7.5	7.8	-18.3	.1	-3.4	-21.3
	-----	-----	-----	-----	-----	-----
SUPPLY	22.6	38.6	248.6	.9	21.9	332.7
DEMAND	22.6	38.6	248.6	.9	21.9	332.7
SHORT						
OPEN MMB	1.4	1.5	5.2	.0	1.0	9.1
CLOSE MMB	2.1	.8	6.9	.0	1.3	11.0

-TO-	
PAD 1	2.7
PAD 2	1.0

LIQUEFIED GASES
Policy Option

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	43.6	64.4	140.3	6.2	41.2	295.8
% YIELD	3.3	2.1	3.0	1.5	2.3	2.6
BLEND	130.7	243.4	427.5		-2.1	799.4
IMPORTS		115.5	73.5	44.6	52.5	286.1
SHIPMENTS						
RECEIPTS						
FROM INV.	-30.3	-60.5	5.6	-5.6	-23.3	-114.1
	-----	-----	-----	-----	-----	-----
SUPPLY	144.0	362.7	646.9	45.3	68.2	1,267.2
DEMAND	144.0	380.7	962.5	54.0	73.8	1,615.0
SHORT		18.0	315.6	8.7	5.5	347.8
% DEMAND		4.7	32.8	16.1	7.5	21.5
OPEN MMB	3.7	22.8	42.7	.5	1.0	70.6
CLOSE MMB	4.5	24.5	42.6	.6	1.6	73.8

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	45.9	63.2	140.7	6.5	42.2	298.5
% YIELD	3.3	2.0	2.9	1.5	2.3	2.6
BLEND	82.3	84.8	422.2	14.1	-5.6	597.8
IMPORTS		115.5	73.5	44.6	52.5	286.1
SHIPMENTS						
RECEIPTS						
FROM INV.	-32.6	-13.5	-52.4	-26.5	-10.4	-135.6
	-----	-----	-----	-----	-----	-----
SUPPLY	95.6	250.0	584.0	38.6	78.6	1,046.8
DEMAND	95.6	265.7	847.0	47.3	84.5	1,340.0
SHORT		15.7	263.0	8.7	5.9	293.2
% DEMAND		5.9	31.1	18.4	7.0	21.9
OPEN MMB	4.5	24.5	42.6	.6	1.6	73.8
CLOSE MMB	5.5	24.9	44.2	1.5	2.0	78.0

(POLICY OPTION)

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	46.5	63.6	147.8	6.8	43.6	308.4
% YIELD	3.3	2.0	3.0	1.6	2.3	2.6
BLEND	94.3	81.2	558.9	3.6		738.0
IMPORTS		56.4	55.1	17.1	18.4	147.0
SHIPMENTS						
RECEIPTS						
FROM INV.	-62.7	-2.8	-276.5	20.4	23.0	-298.6
SUPPLY	78.1	198.5	485.2	48.0	85.0	894.8
DEMAND	78.1	210.5	727.2	57.3	90.9	1,164.0
SHORT		12.0	242.0	9.3	5.9	269.2
% DEMAND		5.7	33.3	16.3	6.5	23.1
OPEN MMB	5.5	24.9	44.2	1.5	2.0	78.0
CLOSE MMB	7.4	25.0	52.5	.8	1.3	87.0

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	47.7	68.7	151.5	7.1	44.0	319.0
% YIELD	3.3	2.1	3.0	1.6	2.3	2.6
BLEND	70.7	81.9	285.1		-2.1	435.5
IMPORTS		56.4	55.1	17.1	18.4	147.0
SHIPMENTS						
RECEIPTS						
FROM INV.	-63.9	-90.7	35.2	9.3	8.0	-102.1
SUPPLY	54.5	116.3	527.0	33.4	68.2	799.3
DEMAND	54.5	122.3	790.0	39.2	74.0	1,080.0
SHORT		6.0	263.0	5.8	5.9	280.7
% DEMAND		4.9	33.3	14.8	7.9	26.0
OPEN MMB	7.4	25.0	52.5	.8	1.3	87.0
CLOSE MMB	9.4	27.8	51.4	.6	1.0	90.2

(POLICY OPTION)

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	50.0	74.7	155.3	7.3	45.4	332.6
% YIELD	3.3	2.2	3.0	1.6	2.3	2.6
BLEND	82.3	82.5	317.1	10.1	-2.5	489.4
IMPORTS		56.4	55.1	17.1	18.4	147.0
SHIPMENTS						
RECEIPTS						
FROM INV.	-79.6	-110.8	-38.4	.5	-3.9	-232.3
SUPPLY	52.6	102.8	489.0	34.9	57.2	736.6
DEMAND	52.6	108.8	699.4	40.7	60.5	962.0
SHORT		6.0	210.4	5.8	3.2	225.4
% DEMAND		5.5	30.1	14.2	5.3	23.4
OPEN MMB	9.4	27.8	51.4	.6	1.0	90.2
CLOSE MMB	11.8	31.1	52.5	.5	1.1	97.1

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	47.6	68.4	135.1	6.6	47.6	305.4
% YIELD	3.3	2.1	2.7	1.5	2.5	2.5
BLEND	82.3	81.8	508.7	10.7	-3.5	679.9
IMPORTS		49.9	80.1	17.1	19.7	166.7
SHIPMENTS			6.5			6.5
RECEIPTS		6.5				6.5
FROM INV.	-77.8	-75.6	-113.9	-1.1	-2.7	-271.3
SUPPLY	52.0	131.0	603.4	33.2	61.1	880.7
DEMAND	52.0	151.3	705.0	36.8	63.3	1,008.4
SHORT		20.3	101.6	3.6	2.2	127.7
% DEMAND		13.4	14.4	9.8	3.5	12.7
OPEN MMB	11.8	31.1	52.5	.5	1.1	97.1
CLOSE MMB	18.9	38.1	63.0	.7	1.4	122.1

-TO-
PAD 2

6.5

(POLICY OPTION)

LPG/LRG	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	47.7	72.9	130.3	7.0	46.7	304.6
% YIELD	3.3	2.2	2.6	1.6	2.4	2.5
BLEND	86.5	98.2	452.6	14.9	-1.4	650.8
IMPORTS		89.2	56.4	25.8	37.5	209.1
SHIPMENTS						
RECEIPTS						
FROM INV.	-39.9	72.5	149.0	-3.9	-1.4	176.1
SUPPLY	94.2	332.9	788.2	43.8	81.4	1,340.5
DEMAND	94.2	332.9	893.4	43.8	81.4	1,445.7
SHORT			105.2			105.2
% DEMAND			11.8			7.3
OPEN MMB	18.9	38.1	63.0	.7	1.4	122.1
CLOSE MMB	22.6	31.4	49.3	1.0	1.5	105.9

OTHER PRODUCTS
Policy Option

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
YIELD	244.5	418.8	706.4	65.2	236.6	1,671.5
% YIELD	18.5	13.9	15.1	16.0	13.2	14.9
BLEND	47.5	104.9	182.1			334.5
IMPORTS	24.8	7.9			1.3	34.0
SHIPMENTS	2.6		283.7	.3	.7	287.3
RECEIPTS	211.3	73.7		1.0	1.3	287.3
FROM INV.	36.3	-76.8	11.5	-15.5	-7.0	-51.5
SUPPLY	561.8	528.4	616.4	50.4	231.5	1,988.4
DEMAND	561.8	542.8	616.4	50.5	269.5	2,041.0
SHORT		14.4		.2	38.0	52.6
% DEMAND		2.7		.4	14.1	2.6
OPEN MMB	24.9	22.3	21.3	5.5	10.4	84.4
CLOSE MMB	23.9	24.5	21.0	5.9	10.6	85.8
-TO-						
PAD 1			210.6		.7	
PAD 2	2.6		70.8	.3		
PAD 4			1.0			
PAD 5			1.3			

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
YIELD	218.2	419.1	717.6	64.8	257.1	1,676.8
% YIELD	15.7	13.4	14.9	15.5	14.0	14.5
BLEND	29.9	36.6	179.9			246.3
IMPORTS	24.8	7.9			1.3	34.0
SHIPMENTS	2.6		283.7	.3	.7	287.3
RECEIPTS	211.3	73.7		1.0	1.3	287.3
FROM INV.	-24.5	-53.0	40.8	-18.7	3.0	-52.6
SUPPLY	457.0	484.2	654.5	46.7	262.1	1,904.5
DEMAND	457.0	513.0	654.5	48.4	319.1	1,992.0
SHORT		28.8		1.7	57.0	87.5
% DEMAND		5.6		3.6	17.9	4.4
OPEN MMB	23.9	24.5	21.0	5.9	10.6	85.8
CLOSE MMB	24.6	26.1	19.8	6.5	10.5	87.4
-TO-						
PAD 1			210.6		.7	
PAD 2	2.6		70.8	.3		
PAD 4			1.0			
PAD 5			1.3			

(POLICY OPTION)

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	221.3	432.8	743.9	68.5	265.4	1,731.9
% YIELD	15.7	13.6	15.1	15.8	14.0	14.6
BLEND	34.2	35.0	238.1			307.4
IMPORTS	17.3	1.3		2.6	3.9	25.2
SHIPMENTS	2.6		283.7		.7	287.0
RECEIPTS	211.3	73.4		1.0	1.3	287.0
FROM INV.	-47.3	-34.7	-79.3	-14.5	15.6	-160.4
SUPPLY	434.2	507.7	619.0	57.6	285.5	1,904.0
DEMAND	434.2	523.7	619.0	59.3	328.8	1,965.0
SHORT		16.0		1.7	43.2	61.0
% DEMAND		3.1		2.9	13.1	3.1
OPEN MMB	24.6	26.1	19.8	6.5	10.5	87.4
CLOSE MMB	26.1	27.2	22.1	6.9	10.0	92.3

-TO-	PAD 1	PAD 2	PAD 4	PAD 5
PAD 1			210.6	.7
PAD 2	2.6		70.8	
PAD 4			1.0	
PAD 5			1.3	

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	227.0	463.0	762.7	71.0	267.6	1,791.2
% YIELD	15.7	14.2	15.1	16.1	14.0	14.8
BLEND	25.7	35.3	121.5			182.4
IMPORTS	17.3	1.3		2.6	3.9	25.2
SHIPMENTS	2.6		283.7	.0	.7	287.0
RECEIPTS	211.3	73.4		1.0	1.3	287.0
FROM INV.	25.1	-10.7	13.0	-3.0	11.8	36.0
SUPPLY	503.7	562.2	613.5	71.5	283.9	2,034.9
DEMAND	503.7	576.6	613.5	73.3	321.9	2,089.0
SHORT		14.4		1.7	38.0	54.1
% DEMAND		2.5		2.4	11.8	2.6
OPEN MMB	26.1	27.2	22.1	6.9	10.0	92.3
CLOSE MMB	25.3	27.5	21.7	7.0	9.6	91.1

-TO-	PAD 1	PAD 2	PAD 4	PAD 5
PAD 1			210.6	.7
PAD 2	2.6		70.8	
PAD 4			1.0	
PAD 5			1.3	

(POLICY OPTION)

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	237.7	499.6	781.5	73.6	280.2	1,872.6
% YIELD	15.7	14.6	15.1	16.1	14.0	14.9
BLEND	29.9	35.6	135.1			200.5
IMPORTS	17.3	1.3		2.6	3.9	25.2
SHIPMENTS	2.6		283.7	.3	.7	287.3
RECEIPTS	211.3	73.7		1.0	1.3	287.3
FROM INV.	-16.9	52.9	20.8	21.4	13.5	91.7
SUPPLY	476.7	663.1	653.6	98.3	298.3	2,190.0
DEMAND	476.7	687.7	653.6	100.4	351.6	2,270.0
SHORT		24.5		2.1	53.3	80.0
% DEMAND		3.6		2.1	15.2	3.5
OPEN MMB	25.3	27.5	21.7	7.0	9.6	91.1
CLOSE MMB	25.8	25.9	21.1	6.4	9.2	88.4

-TO-	PAD 1	PAD 2	PAD 4	PAD 5
PAD 1			210.6	.7
PAD 2	2.6		70.8	
PAD 4			1.0	
PAD 5			1.3	

OTHER	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	226.3	511.7	717.2	70.7	289.7	1,815.7
% YIELD	15.7	15.7	14.2	16.0	15.2	15.0
BLEND	29.9	35.3	216.7			281.9
IMPORTS	62.6	1.3				63.9
SHIPMENTS	2.6		283.7		.7	287.0
RECEIPTS	211.3	73.4		1.0	1.3	287.0
FROM INV.	4.9	52.1	-1.7	25.0	-6.6	73.7
SUPPLY	532.5	673.8	648.6	96.6	283.7	2,235.1
DEMAND	532.5	717.0	648.6	105.3	340.7	2,344.0
SHORT		43.2		8.7	57.0	108.9
% DEMAND		6.0		8.3	16.7	4.6
OPEN MMB	25.8	25.9	21.1	6.4	9.2	88.4
CLOSE MMB	25.3	21.1	21.3	4.1	9.8	81.6

-TO-	PAD 1	PAD 2	PAD 4	PAD 5
PAD 1			210.6	.7
PAD 2	2.6		70.8	
PAD 4			1.0	
PAD 5			1.3	

(POLICY OPTION)

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
OTHER						
YIELD	226.7	487.2	711.6	70.4	284.1	1,780.0
% YIELD	15.7	14.7	14.2	16.1	14.9	14.7
BLEND	31.4	42.3	192.8			266.6
IMPORTS	65.0					65.0
SHIPMENTS	.3	.7	283.7	.3	.7	285.7
RECEIPTS	212.0	71.4		1.0	1.3	285.7
FROM INV.	21.7	-16.4	-2.7	-9.6	-3.0	-10.1
SUPPLY	556.5	583.8	617.9	61.5	281.6	2,101.3
DEMAND	556.5	583.8	617.9	61.5	323.6	2,143.3
SHORT					42.0	42.0
% DEMAND					13.0	2.0
OPEN MMB	25.3	21.1	21.3	4.1	9.8	81.6
CLOSE MMB	23.3	22.6	21.5	4.9	10.1	82.6
-TO-						
PAD 1		.7	210.6		.7	
PAD 2	.3		70.8	.3		
PAD 4			1.0			
PAD 5			1.3			

TOTAL PRODUCTS

Policy Option

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	FEB
TOTAL						
YIELD	1,354.6	3,111.2	4,804.5	410.1	1,432.2	11,512.5
% YIELD	102.5	103.2	102.7	100.3	102.2	102.6
BLEND	247.7	956.2	995.7		25.1	2,224.7
IMPORTS	1,501.0	126.5	116.5	44.6	113.2	1,901.9
SHIPMENTS	134.7	172.4	3,571.2	62.1	.7	3,941.2
RECEIPTS	3,205.5	524.4	101.2	31.5	78.5	3,941.2
FROM INV.	985.0	64.7	458.1	-23.8	100.2	1,584.2
SUPPLY	7,159.0	4,610.7	2,904.8	400.3	2,148.5	17,223.3
DEMAND	7,162.2	4,645.2	3,234.0	409.5	2,197.0	17,648.0
SHORT	3.2	34.5	329.2	9.3	48.5	424.7
% DEMAND	.0	.7	10.2	2.3	2.2	2.4
OPEN MMB	194.4	192.7	185.5	19.3	72.8	664.8
CLOSE MMB	166.8	190.9	172.7	20.0	70.0	620.4
-TO-						
PAD 1		58.8	3,146.0		.7	
PAD 2	134.7		364.7	25.0		
PAD 3		101.2				
PAD 4		12.4	19.1			
PAD 5			41.4	37.1		

	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAR
TOTAL						
YIELD	1,446.8	3,240.1	4,934.7	422.7	1,866.0	11,910.2
% YIELD	104.1	103.3	102.8	100.9	101.6	102.8
BLEND	156.0	333.3	983.4	43.7	65.0	1,581.5
IMPORTS	1,927.5	128.5	117.3	44.6	113.3	2,331.2
SHIPMENTS	134.7	180.1	3,600.4	80.7	.7	3,996.6
RECEIPTS	3,205.5	557.6	116.3	24.1	93.1	3,996.6
FROM INV.	357.0	187.9	253.9	-63.0	11.0	746.8
SUPPLY	6,958.2	4,267.2	2,805.2	391.4	2,147.7	16,569.6
DEMAND	6,963.0	4,314.8	3,071.3	402.3	2,210.6	16,962.0
SHORT	4.8	47.6	266.1	10.9	62.9	392.4
% DEMAND	.1	1.1	8.7	2.7	2.8	2.3
OPEN MMB	166.8	190.9	172.7	20.0	70.0	620.4
CLOSE MMB	155.7	185.1	164.8	21.9	69.7	597.2
-TO-						
PAD 1		58.8	3,146.0		.7	
PAD 2	134.7		393.9	29.0		
PAD 3		116.3				
PAD 4		5.0	19.1			
PAD 5			41.4	51.7		

(POLICY OPTION)

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	APR
YIELD	1,467.0	3,287.0	5,059.7	436.7	1,926.2	12,176.7
% YIELD	104.1	103.3	102.7	101.0	101.6	102.8
BLEND	178.7	319.3	1,301.8	11.3		1,811.0
IMPORTS	1,285.5	64.0	92.3	19.7	77.3	1,538.8
SHIPMENTS	134.7	177.4	3,581.2	80.7	.7	3,974.7
RECEIPTS	3,205.5	538.4	113.6	24.1	93.1	3,974.7
FROM INV.	17.2	160.5	-396.4	30.3	154.0	-34.4
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SUPPLY	6,019.2	4,191.8	2,589.8	441.4	2,249.9	15,492.1
DEMAND	6,024.0	4,224.1	2,836.1	452.4	2,299.0	15,835.6
SHORT	4.8	32.3	246.2	11.1	49.1	343.5
% DEMAND	.1	.8	8.7	2.4	2.1	2.2
OPEN MMB	155.7	185.1	164.8	21.9	69.7	597.2
CLOSE MMB	155.2	180.3	176.7	21.0	65.0	598.3

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		58.8	3,146.0		.7
PAD 2	134.7		374.7	29.0	
PAD 3		113.6			
PAD 4		5.0	19.1		
PAD 5			41.4	51.7	

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	MAY
YIELD	1,504.9	3,366.1	5,187.4	445.2	1,941.9	12,445.5
% YIELD	104.1	103.1	102.7	101.0	101.6	102.7
BLEND	134.0	321.7	664.1		25.1	1,144.9
IMPORTS	1,252.8	65.6	99.6	19.7	76.1	1,513.8
SHIPMENTS	134.7	180.8	3,372.3	80.7	.7	3,769.2
RECEIPTS	2,992.7	542.3	117.0	24.1	93.1	3,769.2
FROM INV.	-305.7	-225.5	219.6	21.5	-5.1	-295.2
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SUPPLY	5,443.9	3,889.4	2,915.4	429.8	2,130.4	14,808.9
DEMAND	5,443.9	3,910.9	3,178.4	437.4	2,174.3	15,144.8
SHORT		21.5	263.0	7.5	43.9	335.9
% DEMAND		.5	8.3	1.7	2.0	2.2
OPEN MMB	155.2	180.3	176.7	21.0	65.0	598.3
CLOSE MMB	164.7	187.2	169.9	20.3	65.2	607.4

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		58.8	2,933.2		.7
PAD 2	134.7		378.6	29.0	
PAD 3		117.0			
PAD 4		5.0	19.1		
PAD 5			41.4	51.7	

(POLICY OPTION)

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	JUN
YIELD	1,576.1	3,522.1	5,315.0	461.9	2,039.4	12,914.4
% YIELD	104.1	102.9	102.7	101.0	101.8	102.7
BLEND	155.9	324.2	738.7	31.3	29.7	1,279.8
IMPORTS	1,182.5	60.9	80.7	19.7	73.9	1,417.7
SHIPMENTS	134.7	137.1	3,102.5	80.7	.7	3,455.7
RECEIPTS	2,742.0	523.2	73.3	24.1	93.1	3,455.7
FROM INV.	-218.6	-208.5	-299.2	32.5	-67.2	-761.2
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SUPPLY	5,303.2	4,084.8	2,805.8	488.7	2,168.0	14,850.6
DEMAND	5,303.2	4,115.3	3,016.2	496.6	2,224.6	15,156.0
SHORT		30.5	210.4	7.9	56.6	305.4
% DEMAND		.7	7.0	1.6	2.5	2.0
OPEN MMB	164.7	187.2	169.9	20.3	65.2	607.4
CLOSE MMB	171.3	193.5	178.9	19.4	67.2	630.3

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		58.8	2,682.5		.7
PAD 2	134.7		359.5	29.0	
PAD 3		73.3			
PAD 4		5.0	19.1		
PAD 5			41.4	51.7	

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	3Q75
YIELD	1,500.7	3,360.3	5,202.5	445.1	1,961.2	12,469.8
% YIELD	104.1	103.1	103.0	101.0	102.9	103.1
BLEND	155.9	321.4	1,185.0	33.3	41.1	1,736.6
IMPORTS	1,317.9	69.8	126.7	17.1	91.3	1,622.8
SHIPMENTS	134.7	121.4	3,549.0	80.1	.7	3,885.9
RECEIPTS	3,048.4	648.8	60.0	24.1	104.5	3,885.9
FROM INV.	-582.8	-158.7	-220.1	44.1	-67.4	-985.1
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SUPPLY	5,305.4	4,120.2	2,804.9	483.5	2,130.0	14,844.0
DEMAND	5,305.4	4,183.7	2,906.5	495.8	2,189.2	15,080.6
SHORT		63.5	101.6	12.3	59.2	236.6
% DEMAND		1.5	3.5	2.5	2.7	1.6
OPEN MMB	171.3	193.5	178.9	19.4	67.2	630.3
CLOSE MMB	224.9	208.1	199.2	15.3	73.4	720.9

-TO-	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5
PAD 1		56.4	2,991.3		.7
PAD 2	134.7		485.8	28.4	
PAD 3		60.0			
PAD 4		5.0	19.1		
PAD 5			52.8	51.7	

(POLICY OPTION)

TOTAL	PAD 1	PAD 2	PAD 3	PAD 4	PAD 5	4Q75
YIELD	1,503.2	3,410.5	5,161.4	441.7	1,957.9	12,474.6
% YIELD	104.1	102.9	103.0	101.0	102.6	103.0
BLEND	164.0	386.0	1,054.2	46.3	16.3	1,666.7
IMPORTS	1,601.9	100.0	96.7	26.6	102.3	1,927.5
SHIPMENTS	134.7	115.6	3,615.6	80.7	.7	3,947.3
RECEIPTS	3,197.3	543.0	60.0	24.1	122.9	3,947.3
FROM INV.	92.5	230.7	137.5	-19.4	44.7	486.0
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SUPPLY	6,424.1	4,554.6	2,894.2	438.5	2,243.3	16,554.8
DEMAND	6,424.1	4,554.6	2,999.4	438.5	2,285.3	16,702.0
SHORT			105.2		42.0	147.2
% DEMAND			3.5		1.8	.9
OPEN MMB	224.9	208.1	199.2	15.3	73.4	720.9
CLOSE MMB	216.4	186.9	186.5	17.1	69.3	676.2
-TO-						
PAD 1		50.6	3,146.0		.7	
PAD 2	134.7		379.3	29.0		
PAD 3		60.0				
PAD 4		5.0	19.1			
PAD 5			71.2	51.7		

APPENDIX C

Analysis of the Effects of the Congressional
Research Service Estimates
of the \$2 Import Fee and Phased Decontrol

Analysis of the Effects of
the Congressional Research Service
Estimates of the \$2 Import
Fee and Phased Decontrol

Federal Energy Administration
Office of Economic Impact
June 9, 1975

The Congressional Research Service's (CRS) study, "The Economic Impact of an Additional \$1 Crude Oil Import Surcharge and Old Oil Decontrol," greatly overstates the cost of the \$2 tariff and oil price decontrol. CRS estimates that the annual cost of these policies to consumers is \$36.4 billion. The Office of Economic Impact (OEI) puts the annual cost between \$13.2 billion and \$20.5 billion, with a best estimate of \$17.3 billion. The differences in methodology between the two studies are outlined below.

Cost of Crude Import Series

CRS assumes that the full amount of the \$2 tariff would be passed along to consumers. However, the \$1 tariff imposed on February 1 raised crude or product prices by only a fraction of the \$1.

Statistics from FEA's office of Data indicate the following price changes per barrel which have occurred since President Ford levied a \$1 tariff on imported crude in February.

TABLE 1

	<u>Price Change</u> (per barrel)	<u>Jan 75 Price</u>	<u>March 75 Price</u>
Imported Crude	\$.36	\$12.77	\$13.13
New Oil	\$.15	\$11.28	\$11.43
Gasoline (Wholesale)	\$.17	\$18.23	\$18.40
Residual Fuel	\$.33	\$11.36	\$11.69

There are a number of reasons why prices did not increase as much as the tariff. First, a tariff was not levied on imported products. Imported products were excluded from the FEA entitlements program, which had produced \$.60 per barrel of revenue to importers of refined product. Since a tax (actually a subsidy was taken away) of only 60 cents per barrel was imposed on imported products, domestic products refined from imported oil would be competitively disadvantaged if domestic refiners had to pay the full extra dollar for imported crude. Since a surplus of crude oil already exists on the world market, individual exporters may be willing to shave prices, and thus, absorb part of the tariff themselves. This appears to be happening, since the price of imported crude has increased by only 36 cents since the beginning of the year.

OEI calculated the price changes of fuels under three different assumptions about the price increase of crude oil. The first, low case, assumed that since the price of imported crude increased by only 36 cents after the first \$1 tariff was imposed, the price of imported crude would increase by 36 cents when the second \$1 was levied. The price of domestic new oil and imported products were assumed to follow their recent past behavior, also.

The second, middle, case assumed that the price increase of imported oil would be limited to 60 cents per barrel by a 60 cent tariff on imported products. Products were assumed to increase in price by the full 60 cents per barrel. This case represents OEI's best estimate of energy price effects.

The third case assumed that the price of crude oil and products would increase by the full amount of the tariffs.

Oil Price Decontrol

CRS assumed that the price of more than 60 percent of domestic production would be released from price controls. However, when price decontrol becomes fully effective in

1977, only 48 percent of domestic production will be old oil, due to the natural production decline rate on oil fields.

Imported Products

In February, the President excluded importers of refined products from the entitlements program, which reduced importers' revenue by 60 cents per barrel. FEA regulations allowed the price of imported products to rise by 60 cents per barrel to compensate for the reduced revenue. The President's action reduced the purchases of entitlements by other refiners by an equal amount. FEA regulations required these refiners to lower their prices because their costs had been reduced. On balance, the total cost of petroleum products was unaffected by this change in the entitlements programs. CRS included the higher costs of imported products due to the revision in the entitlements program in their analysis, but it did not include the lower costs of some domestically refined products due to this change.

The prices of other fuels are related to the price of oil. OEI's assumptions about these relationships are explained below.

Coal Prices

In the long run, the marginal costs of coal are almost constant at about \$17/ton. Since the industry is competitive, the long run price of coal is not influenced by the price of oil. In the short run, coal not under long term contract (20% of sales rather than 70% assumed by CRS) will sell at a higher price due to the tariff. CRS overstated the coal cost effects by overestimating the amount of sales in the coal spot market. Moreover, the BTU price of coal will not rise to the BTU price of oil, which CRS assumed, because of the limited ability to substitute coal for oil in the short run. OEI estimated the price increase of coal in the spot market by assuming that the cross price elasticity of coal for oil is .08 and the own price elasticity for coal is -.17.

The CRS estimates of coal costs due to oil price decontrol were especially exaggerated. Coal competes with residual fuel much more than with other oil products. The U.S. imports a great deal of its residual fuel, and thus, the price of residual oil is not greatly affected by price controls. Therefore, lifting oil price controls will not significantly affect the price of either residual fuel or coal. CRS assumed that oil price decontrol would raise coal prices by \$11.50 per ton.

Natural Gas

Because the price of interstate natural gas is regulated by FPC, it will not change due to higher oil prices.

The price of intrastate natural gas is not subject to FPC regulation. The 70 percent of intrastate gas which is not under long term contract will tend to rise in price with higher oil prices. However, the size of the intrastate market is only 9.3 tcf according to FPC and BOM data, rather than 11 tcf which was assumed by CRS. Moreover, the intrastate price of natural gas has never been as high as the price of oil on a BTU basis, because limits exist to the substitutability of the two fuels. However, the ratio of the two prices has remained roughly constant over the past few years at about 2.7 to 1. OEI used this ratio to calculate the price change of intrastate gas. CRS overstated the natural gas cost to consumers, since it overstate the price increase of intrastate gas and the size of that market.

In summary, OEI estimated that the annual costs to consumers of a \$2 tariff on imported crude oil, a \$.60 tariff on imported products, and oil price decontrol would be in the range of \$13.2 billion to \$20.5 billion as contrasted with the CRS estimate of \$36.4 billion (see Table 3). The effects of these costs on consumers will be mitigated by a system of

tax rebates. The windfall profits accruing to domestic oil companies due to higher oil prices will be subject to a stiff windfall profits tax.

TABLE 2

Price Increases

<u>Tariff</u>	<u>CRS</u>	<u>OEI Low</u>	<u>OEI Middle</u>	<u>OEI Full Pass Through</u>
Imported Crude	\$2/bbl	\$.72/bbl	\$1.20/bbl	\$2/bbl
Imported Product	\$.60/bbl	\$.30/bbl	\$.60/bbl	\$.60/bbl
Uncontrolled Domestic Crude	\$2/bbl	\$.30/bbl	\$1.20/bbl	\$2/bbl
Coal (spot Market)	\$8/ton	\$.31/ton	\$.63/ton	\$.63/ton
Natural Gas 1/ (intrastate)	\$.34/mcf	\$.074/mcf	\$.127/mcf	\$.212/mcf
<u>Entitlements Changes</u>				
Imported Products	\$.60/bbl	\$.60/bbl	\$.60/bbl	\$.60/bbl
Domestically Refined Products	\$0/bbl	-\$.07/bbl	-\$.07/bbl	-\$.07/bbl
<u>Decontrol</u>				
Old Oil	\$7.75/bbl	\$6.33/bbl	\$7.23/bbl	\$7.75/bbl
Coal (Spot Market)	\$11.50/ton	\$0	\$0	\$0
Natural Gas 1/ (intrastate)	\$.50/mcf	\$.248/mcf	\$.283/mcf	\$.303/mcf
<u>Weighted Average</u>				
Crude Oil 2/	\$4.56/bbl	\$2.48/bbl	\$3.25/bbl	\$3.99/bbl
Coal 3/	\$13.65/ton	\$.06/ton	\$.12/ton	\$.12/ton
Natural Gas 4/	\$.29/mcf	\$.13/mcf	\$.17/mcf	\$.21/mcf

- 1/ Includes only intrastate gas not sold under long term contract.
- 2/ Includes imported and domestic crude oil.
- 3/ Includes coal sold under long term contract and coal sold in the Spot Market.
- 4/ Includes all interstate and intrastate gas.

TABLE 3
Annual Cost (\$ Billions)

<u>Tariff</u>	<u>CRS</u>	<u>OEI Low</u>	<u>OEI Middle</u>	<u>OEI Full Pass Through</u>
Imported Crude	\$ 2.9	\$ 1.051	\$ 1.752	\$ 2.9
Imported Product	.55	.274	.55	.55
Uncontrolled Domestic Oil	2.1	.317	1.270	2.1
Coal	3.4	.037	.076	.076
Natural Gas	2.6	.482	.827	1.38
<u>Entitlements ranges</u>				
Refined Products	.55	0	0	0
<u>Decontrol</u>				
Old Oil	15.7	9.427	10.767	11.541
Coal	4.8	0	0	0
Natural Gas	3.8	1.614	1.842	2.0
TOTAL	36.4	13.2	17.3	20.5

APPENDIX D

Economic Impact of the
Oil Embargo

ECONOMIC IMPACT OF THE OIL EMBARGO

In the future it is highly likely that American consumers and businessmen are going to have to face much more serious energy scarcity problems than they have in the past. This analysis is a preliminary attempt to analyze the impact that energy scarcity problems have upon the United States economy. It shows that energy shortages are as potentially damaging as failures of the economic system fully to employ labor and capital.

Several problems were incurred in the preparation of this report. Current demand-oriented economic models do not adequately forecast the effect of resource shortages on the economy. Some of the factors behind the short term embargo impacts; i.e., shortage, price, and allocation effects, are difficult to isolate and analyze. Finally, current forecasting methods give poor indications of the long term impacts of an oil cutoff.

I. Introduction and Summary

A. Introduction. The economic impact of the Organization of Petroleum Exporting Countries (OPEC) oil embargo, as contrasted with the impacts of energy shortages and higher energy prices that were beginning to show before the embargo is subtle and difficult to separate. In addition, the observed impacts of the embargo reflect Government price and allocation programs and may have been significantly different without these policies and actions. This paper focuses on the economic and social consequences of all of these phenomena. A comprehensive clarification of the differences between the embargo effects, the effects of long term shifts in energy prices, and the impact of government allocation programs, goes beyond the scope of this paper and should be the subject of further research. It is intended that this paper serve as a preliminary interpretative guide to the underlying causes and consequences surrounding the events of the OPEC oil embargo.'

The basis for the impact of the embargo lies in the growing gap between consumption and domestic production of energy, which began to increase in the early 1960's and continued until rapid curtailment of imports forced curtailments of energy use. Table AV-1 illustrates the gap.

TABLE 1

U.S. Production and Consumption of Petroleum
(1960-73)

Year	Petroleum (Millions Barrels/Day)		Gap
	Production	Consumption	
1960	8.0	9.5	1.5
1965	8.8	10.8	2.0
1970	11.3	14.7	3.4
1972	11.2	16.4	5.2
1973	10.9	17.3	6.4

Oil imports have quadrupled since 1960 making the U.S. economy vulnerable to import embargoes. Tables AV-2 and AV-3 and Figure AV-1 show the impact that the oil embargo had upon the consumption of oil in the United States.

TABLE 2

Estimated Embargo Petroleum Shortages
(Millions Barrels/Day)

	1973 Oct-Dec	Jan	Feb	Oct-Feb
1. Unconstrained Demand <u>a/</u>	18.8	20.1	20.9	19.5
2. Domestic Production <u>b/</u>	10.9	10.6	10.9	10.8
3. Imports <u>b/</u>	6.4	5.4	5.2	6.0
4. Changes in Stocks <u>b/</u>	-0.1	-1.1	-1.0	-0.5
5. Total Consumption <u>b/</u>	17.7 <u>c/</u>	17.3	17.4	17.6
Shortfall (1) - (5)	1.1	2.8	3.5	1.9

a/ Estimated by FEA as being the demand that would have occurred in the absence of the embargo.

b/ Source: Bureau of Mines. Data are not available for March 1974.

c/ Total consumption is not the sum of 2, 3 and 4 because of rounding errors and because exports and processing gains have been omitted.

TABLE 3

Monthly Imports
Before and During the Oil Embargo
(Millions Barrels/Day)

	<u>Crude Oil</u>	<u>Total Refined Products</u>	<u>Major Refined Products</u> ^{b/}		
			<u>Motor Gasoline</u>	<u>Fuel Oil</u>	<u>Jet Fuel</u>
Sept 1973	3.47(47%) ^{a/}	2.65(26%)	0.13(86)	2.14(24%)	0.23(21%)
Oct	3.86(49)	2.67(9)	0.20(186)	2.06(7)	0.21(-30)
Nov	3.45(50)	3.14(30)	0.22(214)	2.43(22)	0.27(50)
Dec	3.99(45)	2.90(1)	0.19(171)	2.30(-5)	0.21(11)
Jan 1974	2.46(-13)	2.85(-4)	0.17(183)	2.25(-7)	0.14(-42)
Feb	2.10(-22)	2.55(17)	0.17(89)	2.06(-20)	0.07(-65)

^{a/} Numbers in parentheses are percent change in imports from the same months of the previous year.

^{b/} The three products shown here account for 90 to 94 percent of the imported refined products for the September through February period.

Table AV-2 shows the estimated petroleum shortages in the United States as a result of the Arab embargo. The largest reductions were in crude and fuel oils. (Assuming that the annual increase in imports would have been 50 and 20 percent respectively in the absence of the embargo, these two products account for approximately a three million barrel a day import reduction during February 1974). Preembargo crude oil imports (September 1973) were equal to 40 percent of the total domestic crude oil production. Imports of motor gasoline, fuel oil and jet fuel met 2 percent, 40 percent and 4 percent respectively of domestic consumption of these products during September.

Government policy, in attempting to minimize the impact of the shortages, was designed to accommodate industrial needs and to promote conservation in the private consumption of energy. The program attempted to minimize the adverse growth and employment effects through a fuel allocation program that promoted positive conservation. The petroleum shortage was borne by the personal consumption sector (retail gasoline consumption, home heating, etc.) either through voluntary conservation or through reduced availability of desired products.

Energy programs that are developed to reduce future shortages and to reduce the impact of potential embargoes will include incentives for industrial and commercial efficiencies as well as conservation by private consumers.

Figure 1

**CHANGE IN IMPORTS FROM PREVIOUS YEAR
[MILLIONS BARRELS/DAY]
SOURCE: BUREAU OF MINES**

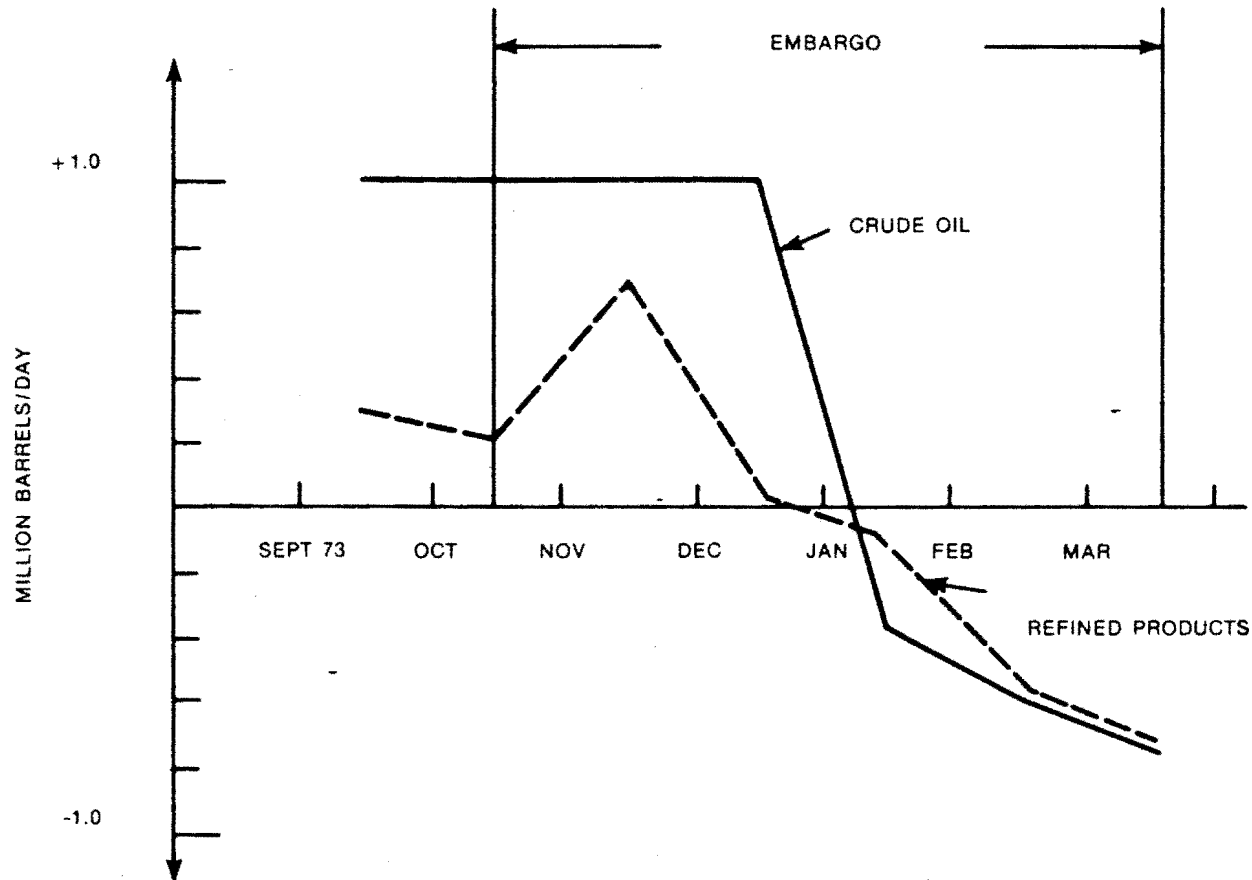


Table AV-2 shows the estimated shortages and Table AV-3 shows the area where major reductions in imports occurred. The largest reductions were in crude and fuel oils. (Assuming that the annual increase in imports would have been 50 and 20 percent respectively in the absence of the embargo, these two products account for approximately a three million barrel a day import reduction during February 1974.) Preembargo crude oil imports (September 1973) were equal to 40 percent of the total domestic crude oil production. Imports of motor gasoline, fuel oil and jet fuel met 2 percent, 40 percent and 4 percent respectively of domestic consumption of these products during September.

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Energy programs that are developed to reduce future shortages and to reduce the impact of potential embargoes will include incentives for industrial and commercial efficiencies as well as conservation by private consumers.

B. Summary of Allocation Program. Allocation authority was granted by the Emergency Petroleum Allocation Act (signed November 27, 1973). Earlier in the year, mandatory allocation regulations had been published separately for middle distillate fuels and propane under authority of the Economic Stabilization Act of 1970.

These regulations covered all petroleum products and directed their allocation from refinery to end-user, except for gasoline which was allocated down to the wholesale level. Retail sales of gasoline were not subject to the allocation regulation, but a proposed gasoline rationing plan was published on January 16, 1974 for comment only. Among the principal features of the regulations were the following: priority to food, defense, emergency services, and fuel production; designation of 1972 as the base year for levels of consumption and supplier/purchases relationships; and limited but explicit role of the States. Most of the problems encountered in the administration of the regulations are related to one or more of these features.

In retrospect, whatever the actual impact of the allocation regulations, it is clear that the short duration of the embargo, the relatively small magnitude of the shortfall, and FEO's readiness to react quickly to developing problems contributed to the absence of any major strains on the administration of the regulations.

C. Summary of Embargo Impacts

1. Aggregate Affects. Estimates indicate that the output of the economy fell in the first quarter of this year by 10 to 20 billion dollars as a result of the embargo. The effect has been to put the economy on a growth path that is \$10 to 20 billion lower than would have occurred without the embargo. However, investment should improve during 1974, leaving consumption to account for most of the reduction in real output. (A large part of the first quarter fall in investment was the result of the weak residential housing sector.) Unemployment effects of the embargo are estimated to be about 0.5 percent of the civilian labor force or a reduction in United States employment of approximately 500,000 people. Finally, energy prices during the embargo period have been responsible for at least 30 percent of the increase in the Consumer Price Index.

The long run aggregate impact of the embargo is uncertain. Primarily two factors account for this. First, the forecast errors of quarterly economic models increase rapidly over time; two years in the future the error is very large. Secondly, if future energy prices remain high, the structure of production and final demands will change. Currently models do not exist that can predict the extent of this change.

2. Socio Economic and Industry Affects. The embargo reduced employment primarily in automobile related industries. The Labor Department estimates that about 80 percent of the industrial layoffs attributed to the energy problems can be traced to the decline in demand for automobile or recreational vehicles. (About 85 percent of the total jobs lost were those of semiskilled workers, five percent were clerical, and three percent were professional.)

Throughout the embargo period the Middle West accounted for approximately two-thirds of all energy related unemployment of which Michigan accounted for upwards of 70 percent.

The following sections discuss these impacts in detail. Section II covers macroeconomic (aggregate) effects, Section III discusses the socio-economic effects, Section IV examines the major industry problems, and Section V contains some comments on the implications which this paper has for future policy and analysis in the Federal Energy Administration.

II. The Macroeconomic Impact

A. Introduction. This section presents estimates of the impact of the oil embargo upon the Nation's aggregate economic variables, particularly output, consumption, investment, employment and prices. Employment is treated briefly since it is a subject of Section III

As mentioned in the previous section, it is difficult to separate the effects of the embargo from events that would have occurred without the embargo. Further, the effects did not end with the lifting of the embargo. These longer term problems are more difficult to appraise than the immediate effects, and the qualifications apply most strongly when we attempt to estimate the impact upon major economic indicators such as GNP. Gross national product and similar variables are composed of hundreds of sub-elements and each could have been affected by the embargo and/or numerous other factors such as monetary policy.

Evaluation of the economic impact of the oil embargo on real GNP requires a comparison of pre-embargo forecasts with actual events. Two analyses, using econometric forecasting, provide assessment of the effect on real output (GNP), consumption and investment. The studies were done by the Government and by Data Resources Incorporated (DRI). Before the studies are summarized general economic performance before and during the embargo is examined.

B. Economic Performance Before and During the Embargo. The following tables (AV-4 through AV-7) give a brief survey of U.S. economic performance during the last two years and the first quarter of this year. After an uninterrupted increase during the first eight quarters, GNP fell at an annual rate of 6.3 percent (preliminary estimate) during the first quarter of 1974. Personal Consumption Expenditures (PCE) anticipated the decline in GNP by falling in the fourth quarter of 1973 by 4.8 percent (annual rate) and falling in the first quarter of 1974 by another 2.7 percent. The composition of Personal Consumption Expenditures (Table AV-5) shows that autos and parts, and energy accounted for 96 percent of the total declines in consumption during the first quarter 1974.

Table 4
Gross National Product Statistics
(1972-1974)

	<u>Real GNP a/</u>	<u>Present changes in GNP from Preceding Quarter (Annual Rate)</u>
1972 - I	768.0	
II	785.6	9.5
III	796.7	5.7
IV	812.3	8.0
1973 - I	829.3	8.6
II	834.3	2.4
III	841.3	3.4
IV	844.6	1.6
1974 - I	831.0	-6.3

a/ Seasonally adjusted at annual rates in billions of 1958 dollars.

Table 5
Real Personal Consumption Expenditures
in 1958 Dollars
(seasonally adjusted at annual rates)

	Consumption Expenditures			% Change from Preceding Quarter (Annual Rate)	
	1973-III	1973-IV	1974-I	1973-IV	1974-I
	Personal consumption	558.1	551.3	547.5	-4.8
Durables-----	115.4	108.7	106.0	-21.2	-9.6
Autos and parts---	51.9	45.7	42.3	-39.9	-26.7
Other durables----	63.5	63.0	63.7	-2.9	4.6
Nondurables-----	230.2	228.3	227.2	-3.3	-1.9
Food-----	104.2	103.2	102.9	-3.8	-1.0
Energy a/ -----	29.0	27.9	24.8	-14.2	-37.9
Other nondurables---	97.0	97.2	99.5	0.7	9.8
Services-----	212.5	214.3	214.3	3.4	0.0
Energy b/-----	15.4	15.2	14.1	-6.9	-25.7
Other services----	197.1	199.1	200.2	4.2	2.2

a/ Gasoline and oil, and fuel and ice
b/ Electricity and gas

Fixed investment also shows declines in the fourth and first quarters, primarily because of declines in residential housing construction and secondarily because of reductions in investment expenditures for autos and trucks.

Table 6
Real Fixed Investment in 1958 Dollars
(seasonally adjusted at annual rates)

				% Change from Preceding Quarter (Annual Rate)	
	1973-III	1973-IV	1974-I	1973-IV	1974-I
	Fixed investment-----	127.7	125.0	121.8	-8.2
Nonresidential-----	93.2	94.5	94.1	5.6	-1.6
Autos-----	7.0	5.9	5.4	-48.3	-27.5
Trucks-----	14.7	14.8	13.2	2.2	-36.1
Other nonresidential	71.5	73.8	76.6	13.3	9.2
Residential'-----	34.5	30.5	27.7	-38.9	-32.5

Data Resources Incorporated and the Department of Commerce have taken the second approach in their estimates of the embargo impact. DRI evaluated the embargo by comparing their pre-embargo estimates of October 24, 1973 with their forecast of May 21, 1974, assuming that the differences in these forecasts reflected only the effect of the embargo. DOC made both of their forecasts after the embargo. However, they explicitly make assumptions of the cuts in expenditures and the changes in the consumption of substitute and complementary goods induced by the shortage of oil. Table AV-7 and Figures AV-2 and AV-3 summarize the estimated impacts.

DRI concludes that the oil cutoff levied a one-time tax on the economy of approximately 20 billion dollars. The growth path of GNP is approximately the same in both forecasts, but the embargo growth schedule is about 19 billion dollars below the pre-embargo predictions. While both consumption and investment share the initial impact of the shortage, investment improves over the forecast period and the difference in consumption increases to \$18 billion by 1975, and remains at \$18 to \$20 billion through that year. The explanation given for this behavior is that the embargo delayed real investment, but cut consumption in the medium term. Virtually all of the decline in consumption expenditures for durables for 1973:4 and 1974:1 was in consumption for domestic automobiles.

The comparisons developed by the Department of Commerce show similar trends even though the forecasting methodology is different. The DOC study forecasts a decline in real output for the first quarter of 1974 of \$10.4 billion and this increases to \$15 billion by the ~~second~~ quarter of 1975. Personal consumption estimates differ by \$9.0 billion in the first quarter of this year and increase toward the end of the year. Finally, private gross domestic investment fell by \$4.0 billion in the first quarter 1974 as a result of the embargo, but approached pre-embargo levels by the end of the year.

Conclusion. There are three conclusions that can be inferred from the DRI and DOC studies. First, real output of the economy fell in the first quarter of this year about \$10 to 20 billion, and the effect has been to put the economy on a growth path that is \$10 to 20 billion lower than would have occurred without the embargo. The long run implications of this estimated displacement of the growth path are uncertain. The estimates are based on quarterly economic models and the forecast errors for such models increase rapidly over time. Specifically, for periods greater than two years in the future, the forecast errors are larger than the estimated reduction in GNP. The embargo may have acted as an exogenous shock which caused a temporary downturn in the relevant economic variables. The long-run dynamic properties of the economy may not have been distributed; given sufficient time, the effects of the shock may dissipate. The point, however, is that we know little about the long-run implications of the embargo.

Table 7

Estimated Differential Impact of the Arab Oil Embargo
on GNP, Consumption, and Investment
Comparing DRI and DOC Forecasts a/
(Billions 1958 Dollars)

Variable		1973-IV	1974-I	1974-II	1974-III	1974-IV	1975-I
<u>Real GNP</u>							
Pre-Embargo	DRI	848.4	851.8	855.7	862.5	869.7	879.9
	DOC	846.7	842.4	848.5	855.8	867.0	875.3
Embargo	DRI	844.6	831.0	836.2	845.4	855.6	864.2
	DOC	<u>844.6</u>	<u>832.0</u>	<u>838.8</u>	<u>845.6</u>	<u>852.5</u>	<u>860.3</u>
Net	DRI	3.8	20.8	19.5	17.1	14.1	15.7
	DOC	2.1	10.4	9.7	10.2	14.5	15.0
Percent) Decrease)	DRI	0.5	2.5	2.3	2.0	1.6	1.8
	DOC	0.2	1.2	1.1	1.1	1.7	1.7
<u>Real Personal Consumption</u>							
Pre-Embargo	DRI	559.9	560.6	563.7	569.2	574.4	581.9
	DOC	554.3	556.5	562.2	567.3	573.9	579.2
Embargo	DRI	551.3	547.2	550.2	554.9	560.6	563.8
	DOC	<u>551.3</u>	<u>547.5</u>	<u>552.9</u>	<u>555.9</u>	<u>559.4</u>	<u>563.9</u>
Net	DRI	8.6	13.4	13.5	14.4	13.8	18.1
	DOC	3.0	9.0	9.3	11.4	14.5	15.3
Percent) Decrease)	DRI	1.6	2.4	2.5	2.6	2.5	3.2
	DOC	0.5	1.6	1.6	2.0	2.5	2.6
<u>Real Gross Private Domestic Investment</u>							
Pre-Embargo	DRI	135.6	136.1	134.4	134.2	135.0	136.3
	DOC	137.6	130.7	129.2	129.4	132.1	133.6
Embargo	DRI	137.6	124.5	130.2	132.6	135.6	139.3
	DOC	<u>137.5</u>	<u>126.7</u>	<u>127.6</u>	<u>130.3</u>	<u>132.0</u>	<u>133.5</u>
Net	DRI	-2.0	11.6	4.2	1.6	-0.7	-3.0
	DOC	0.1	4.0	1.6	-0.9	0.1	0.1
Percent) Decrease)	DRI	-1.5	9.3	3.2	1.2	-0.5	-2.2
	DOC	0.0+	3.1	1.2	-0.6	0.0+	0.0

Data Resource Incorporated (DRI) pre-embargo forecasts were made October 24, 1973. Embargo forecasts were made May 21, 1974. Department of Commerce (DOC) pre-embargo forecasts were made March 6, 1974. Embargo forecasts were made April 26, 1974.



Figure
**ESTIMATED IMPACT OF THE EMBARGO ON
 GROSS NATIONAL PRODUCT**
 SOURCE: DATA RESOURCES INCORPORATED

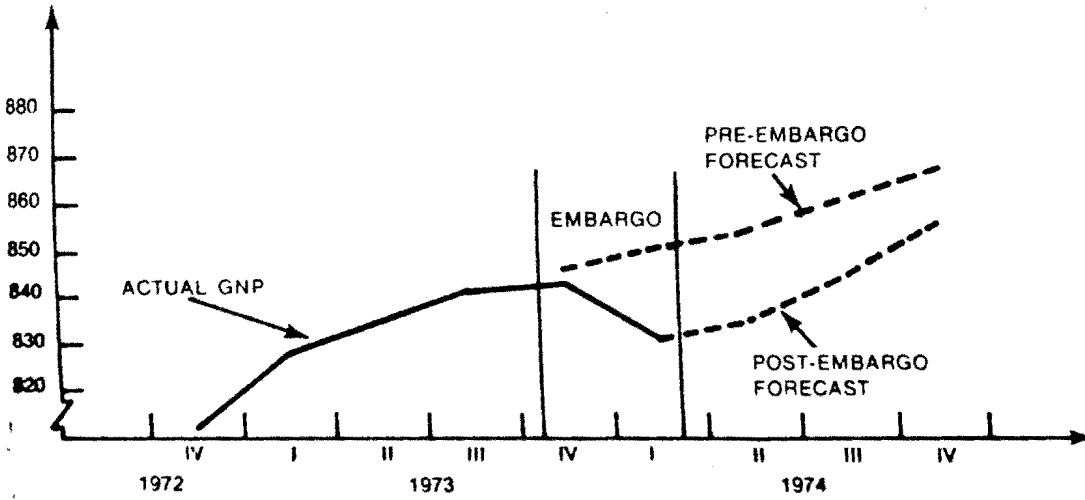
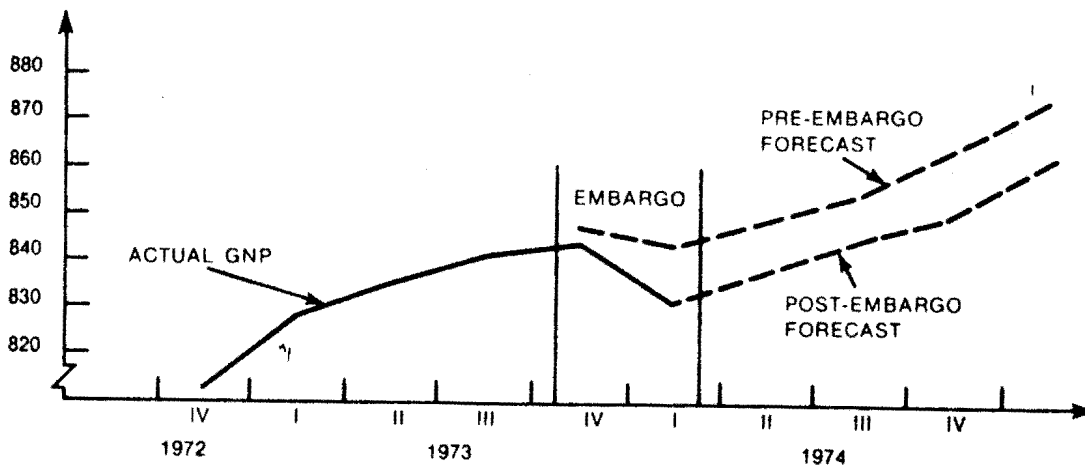


FIGURE
**ESTIMATED IMPACT OF THE EMBARGO ON
 GROSS NATIONAL PRODUCT**
 SOURCE: DEPARTMENT OF COMMERCE



Total employment, as measured by the Department of Commerce rose less than one percent at an annual rate from December 1973 to March 1974 compared with nearly three percent during the third and fourth quarters of the preceding year. Farm employment accounted for all of the increase; nonfarm employment was unchanged and the civilian labor force increased at an annual rate of two percent. Table AV-8 summarizes the nonfarm changes.

Table AV-8
Percent Changes, Nonfarm Payroll Employment
(seasonally adjusted at annual rate)

	<u>1973-I</u>	<u>1973-II</u>	<u>1973-III</u>	<u>1973-IV</u>	<u>1974-I</u>
Total-----	5.0	3.3	2.3	3.5	0.1
Manufacturing					
Durable-----	7.0	6.8	1.9	5.3	-9.1
Nondurable-----	2.4	1.1	-1.4	2.8	-1.5
Transportation and Public Utilities	1.9	1.5	2.8	1.3	2.3
Trade	5.6	2.5	3.1	0.2	1.7
Services	5.8	3.3	5.6	4.2	3.1
Mining	2.0	13.1	2.6	8.5	4.4

Retail trade employment fell 110,000 in December and another 13,000 in January, largely as a result of layoffs of workers in retail automobile establishments and filling stations. Reductions in manufacturing employment occurred mainly in the first quarter of 1974. Cutbacks in transportation equipment accounted for about two-thirds of the drop, nearly all in the motor vehicle industry.

C. Macroeconomic Impact of the Embargo. Because of the absence of explicit energy sectors, large econometric models of the U.S. economy are not yet capable of predicting both the demand for petroleum products and the impact of not being able to meet that demand. However, since energy is not explicitly treated, assumptions can be made about the effect of energy shortages on variables in the models (for example, consumption and investment) and the effects of the embargo can be estimated by running the models with the assumed changes. 1/

1/ The assumed effects of energy shortages include reductions in demand for energy and energy related goods due to higher prices and productions in consumption caused by the allocation program.

Second, initially both investment and consumption declined; however, investment should improve during 1974 and consumption will account for most of the reduction in real output (a large part of the investment fall was due to the residential housing sector - see Table AV-6).

Finally, the DRI study provides evidence that consumer prices increased as a result of the embargo -- Table AV-9. These results are consistent with the information in Table AV-10 in that both tables indicate that **energy had** large effect on consumer prices. Table AV-10 shows energy accounting for **29** percent of the change in consumer prices during the embargo. The DRI forecasts show the oil embargo increasing the consumer price index by 137 percent during the first quarter (accounting for 58 percent of the increase in the CPI).

Table AV-9
Estimated Differential Impact of the Arab Oil Embargo
The Percentage Change in the Consumer Price Index
Using DRI Forecasts (Annual Rates)

Forecast	1974-I	1974-II	1974-III	1974-IV	1975-I
Pre-embargo	5.1	5.6	4.3	4.3	4.2
Embargo	12.1	11.8	8.5	8.9	6.5

Table AV-10
Contributions to Changes in the CPI Index for Selected Items
Pre-embargo and Post Embargo Periods a/

Consumer Goods	Relative Importance of Item to Total Index	Percent Changes in Prices (Annual Rate) <u>b/</u>		Percent Contributions to Changes in CPI	
		Pre-embargo	Embargo	Pre-embargo	Embargo
All Items	100.0	9.4	9.8	100.0	100.0
Food	24.8	21.0	14.9	55.7	40.8
Energy	6.2	11.0	54.0	6.5	29.0
#2 Fuel Oil	0.82	25.1	100.7	2.0	7.8
Gas	1.17	2.3	16.2	0.2	1.9
Electricity	1.22	4.8	25.0	0.6	2.8
Gasoline	2.94	13.6	69.3	3.7	16.6

a/ Pre-embargo: January through September 1973; Embargo: October 1973 through March 1974

b/ Annual rates calculated by FEA

The price increase estimates must be interpreted very carefully. Table AV-10 contains an underestimate of the impact because it does not include the rise in prices resulting from increasing energy prices embedded in other products. In addition, the increases in energy prices are probably not entirely the result of embargo.

III. Socioeconomic Impact

A. Employment Impact

1. Introduction. By deliberate decision, energy programs during the embargo were aimed at protecting jobs and essential services. Aggregate civilian employment and unemployment rates are shown in Table AV-11. Seasonally adjusted data show employment remained comparatively stable throughout the embargo period. The unemployment rate rose from October through January, remained steady in February, then diminished through April. The increase in May and June is largely the result of teenagers entering the civilian labor force following school closing.

Table AV-11
Civilian Employment and Unemployment Rates
(seasonally adjusted)

	<u>Total Civilians Employed (000)</u>	<u>% of Civilian Work Force Unemployed</u>
1973 April	83,854	5.0
Oct	85,649	4.6
Nov	85,649	4.7
Dec	85,669	4.8
1974 Jan	85,811	5.2
Feb	85,803	5.2
Mar	85,863	5.1
Apr	85,775	5.0
May	85,971	5.2
Jun	86,165	5.3

2. Decrease in Aggregate Employment Resulting from the Energy Shortage. The Department of Labor has estimated that for the period November 1973 to March 1974, 150,000 to 225,000 jobs were lost as a direct result of employers' inability to acquire sufficient supplies of petroleum, principally in gasoline stations and airlines.

In addition, a decline of approximately 310,000 jobs occurred indirectly in industries whose products or processes were subject to reduced demand from either real or anticipated fuel shortages (for example, the auto and automotive parts industry).

Thus, the total shortrun impact of the energy shortage on unemployment (ignoring multiplier and investment of expenditure effect which are more long term) was about 0.5 percent of the civilian labor force (500,000 of 90 million).

3. Industries Primarily Affected. The industries that had major reductions in employment are shown in Table AV-12; this list points to the most likely sources of energy-related employment reduction.

Table AV-12
Total Reduction of Employment
November 1973 - March 1974
in Selected Industries
Sensitive to Energy Shortages
(seasonally adjusted)

<u>Industry</u>	<u>Approx. Employment Reduction Due to All Causes</u>	<u>Percent Reduction in Employment</u>
Automotive and Auto Related	237,000	9.2
Retail Gasoline Service Stations	64,000	10.3
Basic Steel Products	27,000	4.3
Hotels, Motels, and other Lodgings	27,000	3.0
Misc. Transportation Equipment- Motorcycles, Bicycles, Trailers, Recreational Vehicles, etc.	22,000	14.5
Transportation by Air ^{1/}	15,000	5.4
Aircraft and Parts	11,000	2.1
Special Trade Contractors	9,000	.5
Laundry and Dry Cleaning Establishments	9,000	2.2
Real Estate	7,000	.9
Misc. Plastics Products	4,000	1.1
Boat Building	No significant change	-
Trucking		

^{1/} This estimate excludes returning strikers.

The reduction of 237,000 jobs in the automotive industry originated to some unknown degree in a decline in the industry which started before the embargo. The Labor Department estimates that about 80 percent of the layoffs attributed to energy problems can be traced to the decline in demand for automobiles or recreational vehicles. The automobile supplying

industry accounted for about one-half of the 80 percent (electrical equipment, grey iron foundries, and air conditioning equipment, located primarily in New York and Indiana) and was affected between November and December 1973. The auto assembly sector was affected a month later in Michigan and California.

4. Occupational Skills Primarily Affected. Based on Labor Department statistics, about 85 percent of the total jobs lost in mass layoffs were those of semiskilled workers (for example, production workers, assembler installers, and machine operators). About five percent were clerical and about three percent were professional, technical, and skilled (including airline pilots, maintenance mechanics, machinists, and some construction workers).

B. Consumption and Income Distribution, Impact

1. Introduction. Currently there are few reliable data that permit estimation of the oil embargo's impact on the distribution of income in the United States. Higher priced energy may have a relatively large impact on people with fixed and low incomes. Future FEA analyses will focus on this problem.

Two factors had large impacts on the consumption of energy and energy related goods during the embargo. First, the allocation and conservation programs directly reduced energy consumption; second, higher prices and uncertainty about future price levels reduced consumption of energy and goods that use energy (such as automobiles). The following examines these effects.

2. Household Travel. Monthly time series data from April 1973 through April 1974 provide evidence that the means of transportation to and from work in the United States basically did not change throughout the year (Table AV-13). These data demonstrate the short term unresponsiveness of mode of work-transportation to changes in the availability and price of gasoline. It does not appear that car pools were used more frequently during the oil embargo than during preceding months. There was only a slight rise in the rate of those persons using public transportation for the trip to work.

Comparison of trips for any purpose made by a household member during the oil embargo versus trips during the summer of 1973 shows that there was a drop in the number of trips made during the oil embargo. A major component of the drop was in trips for social, recreational and dining purposes. The reduction in trips other than to work was attributable to the difficulty and uncertainty in obtaining gasoline.

Table AV-13
Usual Mode of Transportation to Work
National Survey Results
Percent Using Mode

Month	Auto		Public Transportation	Car Occupancy Rate Per Trip
	Driven	Passenger		
Apr 73	74	12	5	1.168
May	77	11	5	1.144
Jun	72	11	8	1.153
Jul	70	14	4	1.194
Aug	N.A.	N.A.	N.A.	N.A.
Sep	72	12	6	1.166
Oct	70	12	6	1.163
Nov	76	10	5	1.118
Dec	77	11	6	1.137
Jan 74	78	10	6	1.132
Feb	76	9	7	1.122
Mar	76	10	7	1.123

Comparison of trips for any purpose made by a household member during the oil embargo versus trips during the summer of 1973 shows that there was a drop in the number of trips made during the oil embargo. A major component of the drop was in trips for social, recreational and dining purposes. The reduction in trips other than to work was attributable to the difficulty and uncertainty in obtaining gasoline.

3. Household Heating. During the entire period of the oil embargo households responded to requests by the Government to reduce temperature levels. The average level of household temperature during 1973-74 was 68 degrees, a two degree reduction from the prior year average. Households that use heating oil reduced temperatures more than households using natural gas or electricity reflecting the effect of the price differentials in the cost of fuels.

4. Use of Electricity. There is a strong positive relationship between household income and the number of electrical appliances owned by a household. Therefore, when reductions in the use of electricity by a household are analyzed, the income of a household indicates the capacity for reduction. The Continuous National Survey shows an increase from 29 percent of those respondents reporting a reduction in use of major appliances during November to about 48 percent at the end of February.

C. Regional Impacts. Throughout the embargo period, the Middle West region suffered approximately two-thirds of all energy related unemployment (as measured by Bureau of Labor Statistics unemployment claims), of which Michigan typically accounted for upwards of 70 percent of the energy unemployed. This is explained by the enormous impact of the embargo on the auto industry and auto related component manufacturers.

D. Government Impacts. Gasoline tax revenues were affected by the embargo. Petroleum product taxes are basically State revenues (though a portion may be remitted to local governments) and typically are in the form of a tax per gallon. Therefore, the loss in revenue can be determined by measuring the number of gallons available for resale. The U.S. Department of Transportation data showed an 8.3 percent decrease in gallons sold in February 1974 as compared to February 1973 for seventeen reporting states. This is significant because most States project petroleum tax revenues on the assumption of continued increases in volume sold. Therefore, the effect of the drop in anticipated revenues is greater than the 8.3 percent figure. Projections made by the Advisory Commission on Intergovernmental Relations (ACIR Bulletin 74-3) at the end of the embargo revised earlier predictions of mammoth tax losses (in early February the projection was a 2.2 billion dollar shortfall in anticipated petroleum tax revenues) down to a still significant \$700 million loss.

The embargo also hurt the State governments as consumers of fuels. State and locally owned institutions which use petroleum products had to introduce higher prices into their budgets. This meant that those who relied on State help to meet budgets had to have more aid.

E. Safety Impacts. The oil embargo had a favorable impact on motor vehicle traffic safety records. Motor vehicle traffic fatalities for every month beginning in November 1973 through March 1974 fell considerable below the level of the corresponding month the year before. Preliminary figures for April 1974 show a decline of about 1,000 below April 1973. The shortfall for each month in 1974 was approximately 25 percent on a national basis. The total reduction in traffic fatalities from November through April 1974 is estimated by the National Highway Traffic Safety Administration at about 4,775 lives.

In part, the decline in highway fatalities reflected the decline in vehicle miles traveled, supporting the hypothesis that the decline was largely the result of the reduction in highway speed limits instituted in November 1973. Additional data of the NHTSA, by States, provide further confirmation of this hypothesis, since the decline in fatalities appears to be greater in States which reduced speed limits than in States which did not.

While there appears to have been some increase in speeds and in lengths of travel since the official termination of the embargo, the NHTSA reports that preliminary April figures show that motorists have not returned to preembargo average speed levels.

IV. Industry Impact of Oil Embargo

A. Introduction. Many companies had experienced energy shortages well before the oil embargo. These shortages were confined largely to natural gas (aside from electric power blackouts and brownouts). During the first half of 1973, shortages were more acute in the larger companies because of the greater frequency of interruptible contracts and because FPC policies require curtailment of the largest interruptible contracts first. However, there was little inconvenience during this period because of the ability to substitute other energy sources for natural gas.

Although adverse effects attributed to natural gas shortages were minimal, most companies made systematic assessments of energy consumption. Some companies also increased their storage capacities for substitute fuels, particularly oil. There is no doubt that the embargo had a significant impact, if only in emphasizing the need for conservation measures and for more comprehensive planning by both industry and Government. For most industries, it appears that output, employment, and profitability impacts were relatively small and, if visible in the statistics, will appear as a temporary aberration from the normal trend. Many industries experienced record sales in 1973 although for some, costs increased more rapidly than sales. Major effects were, however, suffered by some industries, notably motor vehicle manufacturing and industries dependent on motor vehicles, such as suppliers of raw materials, parts, and accessories, car dealers, service stations, and segments of the tourist industry.

The major factor affecting motor vehicle manufacturing, distribution, and supplier industries was the reduction and shift in both actual and expected consumer demand. Shortages of gasoline and increased prices were the primary factors affecting the other industries. The impacts on these industries were highly variable, depending, in the case of manufacturing and dealerships, on the ability to meet changed consumer demands and, in the case of other industries, on location and allocation factors.

The following information is limited to the five industries most seriously affected by energy shortages and is therefore not complete. These industries are motor vehicle manufacturing, recreational vehicle manufacturing, auto sales, gasoline service stations, and motels and hotels. (A further analysis entitled "Microeconomic Impact of the Oil Embargo" is available and gives more detailed information.)

B. Industry Impacts

1. Motor Vehicles. The embargo had a major indirect effect on the motor vehicle industry. The energy shortage affected consumer demand and consequently new car sales. Production of new cars dropped significantly in December 1973, when 518,000 were produced, a reduction of 41 percent from the prior month. During the first quarter of 1974 a total of 1.79 million cars were produced, a reduction of 34 percent from the first quarter of 1973 when 2.71 million cars were produced. More significantly, comparisons of first quarter 1973 with first quarter 1974 indicate a decrease in industrial production of 21.4 percent and of capacity utilization rate of 22.9 percent below the earlier period for the industry. As a result, a 17 percent drop in motor vehicles production is expected for the year 1974. Moreover, as mentioned in Section II, 237,000 workers or 30 percent of the industries' total labor force was laid off, on a temporary or permanent basis.

The most significant impact on the sales, production, and earnings of the motor vehicle industry was felt in the passenger car segment. Consumer preferences shifted toward smaller cars, both domestic and imported, as shown in the following tabulation.

Table AV-14
New Car Sales -- 1973 versus 1972

<u>Auto Class</u>	<u>1973 Sales (Millions)</u>	<u>Per Change in Market Penetration March '73 - March '74</u>
Low Specialty	0.7	62.4
Compact	1.6	28.5
Subcompact	1.1	6.5
Luxury	0.3	-1.6
Intermediate	2.2	-3.6
Standard	1.8	-20.6
High Specialty	0.4	-22.5
Medium	1.5	-31.7

Although this trend had been in evidence for several years, the rapidity and the magnitude of the shift caught most of the major American automobile producers unprepared. Because the passenger car segment is a major consumer of many products, such key industries as steel, iron foundry and rubber were adversely effected. Relatively little direct impact on motor vehicle manufacturing was felt because of shortages of fuels in this industry. The industry is not energy intensive (energy costs represent only 0.5 percent of total manufacturing costs).

2. Recreational Vehicles (RV). The embargo had a significant impact on the recreational vehicle industry. Sales activity at recreational vehicle (RV) dealer lots dropped sharply, forcing a sudden curtailment of production, and resulted in the closing of most RV plants for several weeks. Shipments to dealers fell as much as 75 percent below the previous year's levels. The decrease in demand for RV had the expected detrimental effect on the suppliers of parts and components to this industry.

As a consequence, product choice has shifted to smaller recreational vehicles that can be operated with less gasoline, and to specialty vehicles such as small buses.

3. Automobiles - Wholesale/Retail. The embargo and the ensuing gasoline shortage resulted in reduced sales volume and profit for automobile dealers. More specifically, this condition was caused by changes in consumer demand and the inability of auto manufacturers to adjust quickly to these changes. However, while there were economic losses and inventory problems, the dealership failure rate was low: 102 dealerships out of approximately 26,000 failed in the first quarter of 1974. While this is a comparatively small percentage (0.39%) it should be noted that only 14 failed during the first quarter of 1973.

4. Gasoline Service Stations. The embargo-induced impact on gasoline service stations manifested itself in long lines, short rations, short hours, and escalating prices. During this period, the retailer average retail markup increased from 8 cents to 11 cents per gallon, while the pump prices rose from a 1972 average of 36 cents per gallon (regular gas) to the present price of 55 cents per gallon. Although his sales volume declined, the average dealer experienced higher earning on gasoline sales.

References have been made to thousands of stations closing during the embargo period, but no attempt has been made to compute which of these closings occurred as a result of the embargo. In 1973 as many as 60,000, or 25 percent, of the 225,000 gasoline service stations closed down or changed owners for various reasons.

5. Motel-Hotel. The embargo had an immediate adverse effect on the lodging industry. Hardest hit were those facilities located in rural areas far from the metropolitan limits.

Some important and measurable effects (December 1973 to December 1972) include the following: (a) occupancy rate for motor hotel chains and independents were down in a range from 4 to 65 percent. Because metropolitan hotels and lodging places suffered less, national averages do not adequately reflect the severe degree to which smaller and nonmetropolitan operations were affected, and (b) overall room revenues decreased \$179 million.

V. The Policy and Analysis Implications of the Oil Embargo. This analysis has implications for both energy policy and analysis in the Federal Energy Administration. It has illustrated that the current demand-oriented economic models cannot adequately forecast the effect of resource shortages on the economy. It is impossible to clearly identify the factors behind the short term embargo effects, i.e., to differentiate between the effect of the embargo, the effect of events that were taking place simultaneously with the embargo, and the effect of actions taken by the Federal Government to minimize the impact of the embargo. It is also impossible, given current forecasting tools, to assess the long term impacts of the oil cutoff.

Energy resource planning requires economic models that can reflect the effect of energy shortages and scarcity, i.e., emphasis needs to be placed on developing supply-oriented economic models. Moreover, resource allocation models based upon economic principals need to be developed so that the effects of alternative methods of allocating scarce resources can be more accurately evaluated.

Finally, this analysis shows the potentially great impact that resource shortages, and, in particular, energy shortages, can have upon the economy. The essence of future energy planning must be the development of policies that will insure the best of future energy resources. This requires development of logical frameworks for defining what the best use is; it requires establishment of utilization goals; and, it requires policies and management systems that insure that the energy use goals are met.

APPENDIX E
Technical Appendix

Partial listing of the output of the DRI Quarterly model.
 Row A gives the values for phased decontrol, Row B gives these
 for the DRI solution OPEC Zero 7/1 (the base case), and Row
 D is the difference.

TABLE MAJOR ECONOMIC INDICATORS

----- C CONSUMPTION										
A	913.2	931.6	955.9	981.1	1006.8	1033.0	1060.2	1088.3	1117.4	1145.5
B	913.2	931.6	955.7	980.6	1005.6	1031.5	1058.1	1086.7	1114.5	1142.2
D	0.0	0.0	0.2	0.5	1.2	1.6	2.1	2.2	2.9	3.3
%	0.00	0.00	0.02	0.05	0.12	0.15	0.20	0.20	0.26	0.29
----- IFIXER FIXED PRIVATE NONRESIDENTIAL INVESTMENT										
A	146.9	143.4	145.1	147.9	152.6	158.0	163.9	171.2	180.4	188.5
B	146.9	143.4	145.1	147.7	152.3	157.4	163.1	170.5	179.7	188.0
D	0.0	0.0	0.0	0.1	0.3	0.5	0.7	0.8	0.6	0.5
%	0.00	0.00	0.01	0.03	0.19	0.35	0.43	0.45	0.36	0.25
----- ICR INVESTMENT IN RESIDENTIAL STRUCTURES										
A	35.3	36.0	39.9	46.2	52.1	57.6	63.8	70.0	73.2	73.8
B	35.3	36.0	39.9	46.2	52.1	57.7	64.2	70.8	74.5	75.6
D	0.0	0.0	0.0	0.0	-0.0	-0.1	-0.4	-0.8	-1.3	-1.8
%	0.00	0.00	0.02	0.01	-0.05	-0.22	-0.56	-1.08	-1.74	-2.34
----- INW CHANGE IN BUSINESS INVENTORIES										
A	-19.2	-14.9	-7.5	-2.9	0.7	5.2	6.4	9.4	7.8	6.4
B	-19.2	-14.9	-7.5	-2.9	0.7	5.4	6.7	9.9	8.3	7.8
D	0.0	0.0	-0.0	-0.0	-0.1	-0.2	-0.3	-0.5	-0.9	-1.3
%	0.00	0.00	-0.13	-1.33	-12.00	-2.93	-4.52	-6.03	-10.40	-17.14
----- EXPM NET EXPORTS OF GOODS AND SERVICES										
A	9.3	9.4	9.8	9.9	9.1	7.4	9.0	7.5	7.7	9.3
B	9.3	9.4	9.8	9.8	9.0	7.3	8.8	7.1	6.8	7.8
D	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4	0.9	1.5
%	0.00	0.00	0.28	0.62	0.95	1.83	2.65	5.96	13.21	19.77
----- GF FEDERAL GOVERNMENT PURCHASES OF GOODS AND SERVICES										
A	126.5	129.7	131.7	137.2	138.6	140.1	141.2	146.0	147.7	149.7
B	SAME									
----- SSL STATE AND LOCAL GOVERNMENT PURCHASES OF GOODS AND SERVICES										
A	205.1	209.5	213.9	220.1	227.1	234.6	241.8	248.3	254.6	260.8
B	205.1	209.5	213.9	220.0	227.0	234.3	241.5	247.9	254.1	260.4
D	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.5	0.5
%	0.00	0.00	0.01	0.03	0.07	0.10	0.13	0.16	0.18	0.18
----- GNP GROSS NATIONAL PRODUCT										
A	1417.1	1443.6	1488.8	1538.4	1585.9	1635.9	1686.2	1740.3	1788.8	1833.0
B	1417.1	1443.6	1488.5	1537.7	1584.3	1633.7	1683.5	1737.8	1786.1	1830.4
D	0.0	0.0	0.2	0.7	1.6	2.2	2.7	2.4	2.7	2.6
%	0.00	0.00	0.02	0.05	0.10	0.13	0.16	0.14	0.15	0.14

	75:1	75:2	75:3	75:4	76:1	76:2	76:3	76:4	77:1	77:2
---- 5NP59	GNP IN 1958 DOLLARS									
A	790.2	792.7	796.5	811.0	826.3	841.8	856.3	872.4	895.9	895.9
B	790.2	792.7	796.7	811.2	826.5	842.2	859.1	874.6	899.2	900.6
D	0.0	0.0	-0.0	-0.2	-0.2	-0.5	-1.3	-2.2	-3.4	-4.7
%	0.00	0.00	-0.01	-0.03	-0.02	-0.06	-0.15	-0.25	-0.32	-0.52
---- RQSNP	ANNUAL RATE OF GROWTH OF GNP									
A	9.53	6.29	5.41	6.16	4.77	5.13	5.20	5.51	5.01	5.39
B	9.53	6.29	5.31	5.95	4.56	4.94	4.69	5.17	4.44	4.92
D	0.00	0.00	0.09	0.21	0.21	0.23	0.51	0.35	0.57	0.57
%	0.00	0.00	1.73	3.56	4.53	5.98	10.97	6.73	12.78	11.88
---- RCPI	ANNUAL RATE OF GROWTH OF THE CPI									
A	9.00	7.46	6.62	5.70	5.31	5.48	5.39	5.44	5.76	6.09
B	9.00	7.46	6.54	5.55	5.08	5.25	5.00	5.10	5.30	5.66
D	0.00	0.00	0.09	0.15	0.23	0.23	0.39	0.34	0.46	0.44
%	0.00	0.00	1.32	2.71	4.54	4.41	7.79	6.74	8.78	7.74
---- WPI	WHOLESALE PRICE INDEX									
A	1.707	1.734	1.757	1.775	1.798	1.829	1.859	1.890	1.927	1.965
B	1.707	1.734	1.756	1.771	1.790	1.817	1.841	1.867	1.898	1.930
D	0.000	0.000	0.001	0.004	0.008	0.012	0.018	0.023	0.029	0.035
%	0.00	0.00	0.08	0.22	0.46	0.66	0.97	1.21	1.53	1.81
---- JRWESP	INDEX OF COMPENSATION PER MAN HOUR - PRIVATE ECONOMY									
A	1.744	1.777	1.812	1.843	1.876	1.911	1.946	1.983	2.020	2.055
B	1.744	1.777	1.812	1.843	1.876	1.911	1.946	1.982	2.019	2.054
D	0.000	0.000	-0.000	-0.000	0.000	0.000	0.001	0.001	0.001	0.001
%	0.00	0.00	-0.00	-0.00	0.01	0.02	0.03	0.04	0.04	0.05
---- JFRB	FEDERAL RESERVE BOARD PRODUCTION INDEX									
A	1.116	1.098	1.119	1.147	1.180	1.215	1.245	1.281	1.308	1.325
B	1.116	1.098	1.119	1.147	1.181	1.216	1.248	1.287	1.317	1.339
D	0.000	0.000	-0.000	-0.000	-0.000	-0.001	-0.003	-0.005	-0.009	-0.013
%	0.00	0.00	-0.02	-0.03	-0.04	-0.08	-0.21	-0.43	-0.70	-0.99
---- HUSTS	PRIVATE HOUSING STARTS									
A	0.991	1.113	1.329	1.581	1.664	1.773	1.961	2.101	2.092	1.949
B	0.991	1.113	1.329	1.582	1.669	1.787	1.981	2.154	2.168	2.038
D	0.000	0.000	0.000	-0.001	-0.005	-0.015	-0.030	-0.053	-0.076	-0.089
%	0.00	0.00	0.02	-0.07	-0.31	-0.91	-1.50	-2.46	-3.51	-4.37
---- SOTRCARS	TOTAL RETAIL SALES OF NEW PASSENGER CARS									
A	8.3	7.9	9.1	9.6	9.1	9.4	9.7	10.0	10.4	10.5
B	8.3	7.9	9.1	9.6	9.1	9.4	9.7	10.2	10.6	10.7
D	0.0	0.0	-0.0	-0.0	-0.0	-0.0	-0.1	-0.1	-0.2	-0.2
%	0.00	0.00	-0.01	-0.10	-0.24	-0.44	-0.85	-1.41	-1.87	-2.26

75:1 75:2 75:3 75:4 76:1 76:2 76:3 76:4 77:1 77:2

---- RU UNEMPLOYMENT RATE

A	9.4	9.1	9.2	9.0	8.7	8.3	8.0	7.6	7.3	7.0
B	9.4	9.1	9.2	8.9	8.6	8.3	7.9	7.5	7.2	6.9
D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
%	0.00	0.00	0.01	0.05	0.07	0.14	0.36	0.72	1.25	1.93

---- DEFGF FEDERAL GOVERNMENT SURPLUS - NIA ACCOUNTS

A	-54.7	-103.0	-73.9	-76.5	-58.8	-59.9	-49.6	-44.5	-36.7	-32.0
B	-54.7	-103.0	-74.0	-77.7	-70.9	-62.0	-51.3	-46.3	-39.6	-34.4
D	0.0	0.0	0.3	1.2	2.1	2.1	2.2	1.3	2.9	2.4
%	0.00	0.00	0.35	1.54	3.00	3.38	4.29	3.79	7.41	7.08

---- RMPUNEWRRNS - AVERAGE YIELD ON NEW ISSUES OF AA-RATED CORPORATE UTILITY BONDS

A	9.17	9.51	9.01	9.74	9.61	9.60	9.69	9.77	9.93	9.03
B	9.17	9.51	9.01	9.74	9.60	9.59	9.64	9.69	9.74	9.93
D	0.00	0.00	0.00	0.01	0.01	0.03	0.05	0.07	0.09	0.10
%	0.00	0.00	0.01	0.05	0.10	0.31	0.59	0.84	1.01	1.17

---- RMMPCNEWNS AVERAGE YIELD ON NEW ISSUES OF HIGH GRADE CORPORATE BONDS

A	9.69	9.11	9.66	9.42	9.31	9.31	9.41	9.48	9.54	9.74
B	9.69	9.11	9.66	9.42	9.30	9.29	9.36	9.41	9.46	9.64
D	0.00	0.00	0.00	0.01	0.01	0.03	0.05	0.07	0.09	0.10
%	0.00	0.00	0.01	0.05	0.10	0.31	0.59	0.84	1.00	1.17

---- RMFEDFUNDS EFFECTIVE RATE ON FEDERAL FUNDS

A	5.30	5.31	4.98	5.50	5.80	5.92	6.43	6.89	7.53	9.02
B	5.30	5.31	4.98	5.48	5.89	5.74	6.11	6.40	6.97	8.51
D	0.00	0.00	-0.00	0.05	0.11	0.18	0.33	0.49	0.55	0.51
%	0.00	0.00	-0.02	0.95	1.90	3.19	5.36	7.59	7.95	5.99

---- YP PERSONAL INCOME

A	1193.4	1224.3	1262.5	1298.5	1331.4	1367.3	1405.4	1440.8	1474.6	1507.9
B	1193.4	1224.3	1262.3	1297.8	1329.9	1365.1	1402.1	1436.9	1469.3	1501.7
D	0.0	0.0	0.3	0.7	1.5	2.2	3.3	4.0	5.3	6.2
%	0.00	0.00	0.02	0.05	0.11	0.16	0.23	0.28	0.36	0.42

---- YD DISPOSABLE PERSONAL INCOME

A	1015.5	1082.9	1087.1	1117.2	1146.0	1176.0	1204.2	1233.4	1261.3	1289.4
B	1015.5	1082.9	1086.9	1116.5	1144.0	1173.4	1200.5	1229.1	1255.1	1281.3
D	0.0	0.0	0.2	0.7	1.9	2.6	3.7	4.3	6.2	7.2
%	0.00	0.00	0.02	0.06	0.17	0.22	0.30	0.35	0.50	0.56

---- SVYD PERSONAL SAVINGS AS A PERCENT OF DISPOSABLE PERSONAL INCOME

A	7.5	11.5	9.6	9.7	9.7	9.7	9.6	9.4	9.1	9.3
B	7.5	11.5	9.6	9.7	9.7	9.7	9.5	9.2	8.8	9.5
D	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3
%	0.00	0.00	0.03	0.13	0.51	0.69	1.06	1.56	2.48	3.00

	75:1	75:2	75:3	75:4	76:1	76:2	76:3	76:4	77:1	77:2
---- CCACORP	CORPORATE CAPITAL CONSUMPTION ALLOWANCES									
A	81.2	83.0	84.9	86.7	88.6	90.5	92.4	94.4	96.4	98.5
B	81.2	83.0	84.9	86.7	88.6	90.5	92.4	94.4	96.4	98.5
D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
---- ZB	CORPORATE PROFITS BEFORE TAX EXCLUDING INVENTORY VALUATION ADJUSTMENT									
A	100.3	101.2	105.7	111.5	118.1	129.8	137.4	149.2	160.1	165.5
B	100.3	101.2	105.0	110.1	115.7	127.5	134.6	147.1	157.9	164.1
D	0.0	0.0	0.7	1.3	2.4	2.4	2.9	2.1	2.2	1.5
%	0.00	0.00	0.69	1.22	2.09	1.94	2.12	1.40	1.41	0.91
---- ZB	CORPORATE PROFITS AFTER TAX EXCLUDING INVENTORY VALUATION ADJUSTMENT									
A	61.8	62.2	65.0	67.8	70.8	78.0	82.7	89.9	94.6	98.0
B	61.8	62.2	64.8	67.7	71.1	78.4	82.8	90.5	96.9	100.7
D	0.0	0.0	0.4	0.0	-0.3	-0.4	-0.1	-0.6	-2.3	-2.3
%	0.00	0.00	0.69	0.07	-0.43	-0.47	-0.10	-0.62	-2.42	-2.76
---- RGNP58	ANNUAL RATE OF GROWTH OF REAL GNP									
A	-11.3	1.3	7.3	7.4	7.9	7.7	7.3	7.5	6.3	4.6
B	-11.3	1.3	7.3	7.5	7.9	7.8	7.7	9.0	6.3	5.2
D	0.0	0.0	-0.0	-0.1	0.0	-0.1	-0.4	-0.4	-0.5	-0.6
%	0.00	0.00	-0.31	-1.19	0.26	-1.38	-5.35	-5.55	-7.73	-11.55