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Final Report

REGIONAL DEMAND FORECASTING

AND SIMULATION MODEL;

USER'S MANUAL

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INTRODUCTION

The Department of Energy's Regional Demand Forecasting Model (RDFOR hereafter) is an econometric and simulation system designed to estimate annual fuel-sector-region specific consumption of energy for the United States. Its purposes are to (1) provide the demand side of the Project Independence Evaluation System (PIES), (2) enhance our empirical insights into the structure of U.S. energy demand, and (3) assist policy-makers in their decisions on and formulations of various energy policies and/or scenarios. The latter two purposes can be performed independent of PIES.

This report provides a self-contained user's manual for interpreting, utilizing, and implementing RDFOR simulation software packages. Since detailed accounts and documentation of RDFOR and its linkages with PIES are provided elsewhere {1}, this report concentrates solely on "how" rather than "why" in most of its presentations.

Chapters I and II present the theoretical structure and the simulation of RDFOR, respectively. These two chapters are intended to familiarize the user with the model and to provide him/her with a handy reference to both the structure and the simulation aspects of it. Chapter III describes several potential scenarios which are (or have been) utilized in the RDFOR simulations. Two of these scenarios are given particular attention since they are selected for actual implementation in this manual. Chapter IV presents an overview of the complete software package utilized in simulation. Chapter V provides the detailed explanation and documentation of this package. The last chapter describes step-by-step implementation of the simulation package using the two scenarios detailed in chapter III. Discussion in this chapter is limited to directions about how to run the package. These directions, however, include cross-references both to the software and to its documentation.

{1}

See Synergy, Inc., The Regional Demand Forecasting Model: 1977-78 Versions, Final Documentation Report, Washington, D.C.: Synergy, Inc., Sept. 1978.

I. THEORETICAL STRUCTURE OF RDFOR

RDFOR is an econometric model designed to estimate annual energy demand by fuel, sector, and DOE regions. It is comprised of a system of 402 relationships of which more than half are stochastic and the rest are non-behavioral. This system is mostly log-linear, partially simultaneous, and dynamic. It constitutes a major component of the PIES and its structure is based on the premise that a rich set of historical data exists which can be used to devise parameters relevant to the future conditions being simulated by the overall PIES model. Under this premise, this system is empirically estimated using pooled state cross-section time-series over 1960-1975 and, where such use is infeasible, using annual national observations covering roughly the same period.

The scope of this chapter is limited to the presentation of the theoretical structure of RDFOR. Section one gives an overall view of the model and section two describes and analyses in detail the construct of the system.

1. An Overview of RDFOR

The RDFOR model contains 14 fuels:

(1) Gasoline	(8) Coal
(2) Electricity	(9) Oil
(3) Natural Gas	(10) Petroleum Products
(4) Distillate Fuel	(11) Asphalt
(5) Residual Fuel	(12) Petroleum Coke
(6) Liquid Gases	(13) Metallurgical Coal
(7) Jet Fuel	(14) Total Fuels.

These fuels are spread over four sectors:

- (1) Residential
- (2) Commercial
- (3) Industrial
- (4) Transportation.

In addition, feedstocks and raw materials comprise two smaller sectors, which are modeled within RDFOR and PIES by DOE region.

RDFOR provides estimates of the prices, demands, and elasticities for 30 fuel/sector pairs for the ten DOE regions. A fuel/sector pair consists of a fuel allocated over a specific sector of the economy. For example, natural gas is a fuel while natural gas-household and natural gas-industrial are fuel/sector pairs. In addition to these pairs RDFOR provides information on: eight fuels totals, four sector fuels totals, and a total for all fuels. These give 43 fuel choices for analysis. Table I.1 represents these choices in a grid pattern. Table I.2 lists the fuel/sector pairs and their codes. Table I.3 lists the eight fuels totals and their codes. Table I.4 lists sector fuels totals and their codes.

Within RDFOR, fuel choices are price-sensitive and price induced substitution is uninhibited. Moreover, dynamic adjustments to changing fuel prices and economic conditions are incorporated into the model. Figure I.1 depicts the structure and flow of RDFOR. The preprocessors shown near the top of the figure take regionally specific raw data for macroeconomic forecasts and initial quantities and prices and transform these data into standard format files which can be read directly by RDFOR.

In addition to macro variables, prices, quantities, and particular conservation programs' effects on the transportation sector, regional parameter values are also preprocessed as input to RDFOR. These parameters determine how responsive demand is to prices and economic conditions.

Within RDFOR, the demands for and the prices of the 30 fuel/sector pairs combine to define points on a demand surface. The slopes of the various demand curves are obtained by perturbing prices and recording the new demands. The log-linearity of the equations permits a single perturbation to derive elasticities. The derived elasticities are intertemporal and fit well within the PIES framework where price changes are 'rolled-in' over time.

The intermediate files containing regional demand points for each price path perturbation are combined with unperturbed prices in RDFOR and control is transferred to the demand interface program (DFACE). Elasticities are calculated and are adjusted for specific scenario demand shifts. The adjusted demand points and elasticity arrays produced by DFACE serve as model inputs to the PIES integrating mechanism. RDFOR and DFACE also produce their own formal reports.

TABLE I.1: FUELS AND FUEL SECTORS OF THE RDFOR MODEL

Fuels	Sector				Total**
	1	2	3	4	
1. Gasoline				X	
2. Electricity	X	X	X	X	X
3. Natural Gas	X	X	X		X
4. Distillate	X	X	X	X	X
5. Residual		X	X	X	X
6. Liquid Gases	X	X	X	X (3)	X
7. Jet Fuel				X	
8. Coal		X	X	X	X
9. Oil					X
10. Other Pet. Prod.					X
11. Asphalt		X			
12. Pet. Coke			X		
13. Met. Coal			X		
14. Total*	X	X	X	X	X

* Total of All Fuels in One Sector

** Total of One Fuel Across All Sectors

Legend

1=residential

2=Commercial

3=Industrial

4=Transportation, Feedstock and Raw Material

TABLE I.2: THIRTY FUEL/SECTOR PAIRS

Fuel Description	Fuel Code	Price Paths Exist
Coal		
Household/Commercial Coal	CLHC	
Industrial Coal	CLIN	x
Transportation Coal	CLTR	
Commercial Asphalt	ASCM	
Distillate		
Commercial Distillate	DPCM	x
Industrial Distillate	DFIN	x
Residential Distillate	DFRS	x
Transportation Distillate	DFTR	x
Electricity		
Commercial Electricity	ELCM	x
Industrial Electricity	ELIN	x
Residential Electricity	ELRS	x
Transportation Electricity	ELTR	
Gas--Natural		
Commercial Natural Gas	NGCM	x
Industrial Natural Gas	NGIN	x
Raw Material Natural Gas	NGRM	
Residential Natural Gas	NGRG	x
Gases--Liquid		
Commercial Liquid Gases	LGCM	
Feedstock Liquid Gases	LGFS	
Industrial Liquid Gases	LGIN	x
Raw Materials Liquid Gases	LGRM	
Residential Liquid Gases	LGRS	x
Transportation Liquid Gases	LGTR	
Gasoline		
Transportation Gasoline	GSTR	x
Jet Fuel		
Transportation Jet Fuel	JFTR	x
Metallurgical Coal		
Industrial Metallurgical Coal	MCIN	
Oil		
Raw Material Oil	OLRM	

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Theoretical Structure of RDFOR

Petroleum Coke		
Industrial Petroleum Coke	PCIN	
Residual		
Commercial Residual	RFCM	X
Industrial Residual	RFIN	X
Transportation Residual	RFTR	X

TABLE I.3: EIGHT FUELS TOTALS

Fuel Description	Fuel Code

Total Electricity	ELTT
Total Natural Gas	NGTT
Total Distillate	DFTT
Total Residual	RFTT
Total Liquid Gases	LGTT
Total Coal	CLTT
Total Oil	OLTT
Total Other Petroleum Products	OPTT

TABLE I.4: SECTOR FUEL TOTALS

Fuel Description	Fuel Code

Residential--All Fuels	TTRS
Commercial--All Fuels	TTCM
Industrial--All Fuels	TTIN
Transportation--All Fuels	TTTR
Total--All Fuels	TTTT

FIGURE I.1 DEMAND MODEL SCHEMATIC

As output, RDFOR provides:

- (1) Forecasts of demand for the 30 fuel/sector pairs
- (2) The prices of the following fuels:
distillate fuel
gasoline
household electricity
household natural gas
industrial bituminous coal
industrial electricity
industrial natural gas
residual fuel
other petroleum products (kerosene) and liquid gases.
- (3) The elasticities of each of the 30 fuel/sector pairs with respect to the prices of the fuels products listed in (2) above.

PIES determines supply-demand equilibrium for prices and quantities of the fuels denoted above. Using estimates of price-elasticities, the demand curve for each fuel is established through a step function approximation. For each of the fuels the price-elasticity of the predominant fuel/sector pair component is selected from an elasticity matrix. The elasticities used are for:

- (1) gasoline in transportation
- (2) household distillate fuel
- (3) household residual fuel
- (4) household kerosene
- (5) household electricity
- (6) industrial natural gas
- (7) industrial bituminous coal
- (8) metallurgical coal.

RDFOR constructs demand curves for each fuel by first computing elasticities through the use of perturbed prices and quantity responses and then combining the elasticities with unperturbed prices. Furthermore, DFACE aggregates and transforms the demand curve estimates into a format for use in PIES.

Certain fuels, e.g., metallurgical coal, are not treated in the same way as other more important fuels by RDFOR. RDFOR provides estimates of demand for these minor fuels, but the demand is then considered to be wholly elastic. Further, no interfuel substitution is permitted. These constraints are achieved within the demand model which provides estimates of zero for self and cross-price elasticities for these fuels. For example, the price of metallurgical coal is set arbitrarily at \$30/ton within the equilibrating routine and thereafter metallurgical coal is

treated by the model in precisely the same way as the other price-sensitive fuels. When demand curves are calculated for these fuels, they are horizontal and quantities consumed are determined by supply.

2. Theoretical Structure of RDFOR

This section provides a detailed analysis of the theoretical structure of RDFOR. Both the functional specifications of the equations and their relationship to other econometric models of demand are examined. These are coupled with a discussion of the regional disaggregation of the model as well as the disaggregation among fuel types. In addition, this section analyzes the transportation sector model and the minor fuels sector model which differ in structure from the other sector models within RDFOR.

RDFOR is broken down into three submodels:

- (1) Demand relationships for the residential, commercial, and industrial sectors of the U.S. economy.
- (2) Demand for fuel in the transportation sector.
- (3) Demand equations which cover the remaining fuel consumption categories.

Each of these submodels is analyzed separately.

A. Residential, Commercial and Industrial Sector Fuel Demands (Submodel 1)

The functional relationships that are used to represent the demand for fuels in the residential, commercial, and industrial sectors of the U.S. economy capture the basic elements of consumer and producer demand theory. However, these relationships are not "directly" related to the underlying theory, and the exact specifications are not analytically deducible. In part, this is due to the high level of aggregation employed in the model, which makes it difficult to impose theoretical structures on the demand relationships. Thus, the

specifications presented should be interpreted as the reduced forms of valid, but not exactly specified, structures.

There are two basic demand relationships. The first relates the total use of fuel to the other goods and services in the economy. The second analyzes the distribution of this total fuel demand between different types of fuels. This type of structure has implications for the extent to which different types of fuel and non-fuel goods interact as well as how changes in the rest of the economy affect various types of fuels demanded.

Aggregate Per Capita Fuel Demand. Aggregate Per Capita energy consumption depends on (1) a measure of the price of energy (2) the level of per capita economic activity--which represents either the per capita income of consumers or value added in manufacturing and (3) the number of heating degree days and cooling degree days--which reflect shifts over time and across regions in aggregate energy demand. These latter two variables serve as proxies for variations in temperatures.

The demand function is written as:

$$(I-1) \quad TQ = f(TP, Y, HDD, CDD)$$

where TQ is a value weighted geometric index of per capita fuel types, TP is a value weighted geometric index of individual fuel prices, Y is either disposable income per capita (for the residential and commercial sector) or value added in manufacturing (VA in the industrial sector), HDD is the heating degree days, and CDD is cooling degree days.

Since both TQ and TP are "total" indices based only on the prices and quantities of various fuels, the substitutability or complementarity of non-fuel goods and services with fuels are not directly modeled by this formulation. In particular, this specification does not directly account for the effects of changes in the prices of non-fuel goods and services upon energy demand.

Specific Per Capita Fuel Demand. The per capita quantity demanded of a specific fuel type relative to the per capita aggregate fuel demand (Q/TQ) is modeled to depend on (1) the price of the fuel in question relative to a price index for all fuels, and (2) the availability of natural gas in a region.

$$(I-2) \quad Q/TQ = g(P/TP, GSC)$$

where GSC is the availability of natural gas as measured by gas service customers.

This specification limits the price sensitivity of the specific fuel demand to the index of fuel prices. Since the value weight of fuel prices in the index is determined by the shares of the fuels in the total price index, the substitution effects are dominated by the share of a fuel in total fuel demand. The change in price of a fuel that has a low weight in the total price index will have smaller effect on demand relative to the change in the price of a fuel that has a large weight.

The total price index (TP) and the total quantity index (TQ) are Divisia indices and are calculated by:

$$(I-3) \ln TP = \sum (\ln P(k) \cdot W(k))$$

$$(I-4) \ln TQ = \sum (\ln Q(k) \cdot W(k))$$

where $P(k)$ and $Q(k)$ are the price and the quantity of the k th fuel, respectively, and $W(k)$ is the weight. The summation (SUM) is over k and the weights are computed by:

$$(I-5) W(k) = (S(k,t) \cdot S(k,t-1))^{**0.5} / \sum (S(k,t) \cdot S(k,t-1))^{**0.5}$$

where

$$(I-6) S(k,t) = P(k,t) \cdot Q(k,t) / \sum (P(k,t) \cdot Q(k,t))$$

These weights vary over time, altering the relative importance of various fuels as demand conditions change. Note also that current TP and TQ depend on both current and lagged prices and quantities. Dependency of current TP on current TQ imposes problem when simulating the model for future forecasts. This point will be discussed in detail in the next chapter.

To examine an important implication of the above scheme, we assume the weight is fixed. Let the percentage changes in Q/TQ and TP for a one percent change in P/TP and TP be b and b' , respectively. Then a one percent change in $P(j)$ induces a percentage change in $Q(i)/TQ$. When i and j are not equal, this change, which is fully derived in {1}, is given by:

$$(I-7) (b' - b(i)) W(j)$$

Since all weights are positive by definition, this specification limits the interaction of fuels to being all substitutes or complements in demand. Since $(b' - b(i))$ remains constant as $P(j)$ changes, any complementary fuel inputs will be swamped by the substitution effects of other fuels and show up as substitutes in demand as well.

The relative cross price elasticities of one fuel with all other fuel types depend only on the weights of the fuels in the total price index. The larger the value weight of a fuel in this index, the larger (in absolute terms) is the cross price elasticity.

The weighting scheme has implications for the own price elasticities of demand also. A one percent change in $P(j)$ induces a percentage change in $\{Q(j)/TQ\}$ of:

$$(I-8) \quad b(j) + \{b' - b(j)\} W(j) \quad i = j$$

The larger the weight of the fuel in total fuel value, the more inelastic is the demand for the fuel.

The relationships (I-7) and (I-8) are fully derived in {1}. The interested reader is encouraged to refer to this study for these derivations.

The availability of natural gas is used as a proxy to incorporate into the model the regional variations in the natural gas market. Essentially, the specification of this variable in the demand equation assumes that the demand for natural gas is constant across all regions while the supply curve shifts up and down depending on the region. These fluctuations in this variable represent shifts in the price of obtaining natural gas in a region. When the supply of a fuel in a region increases, the price decreases so as to reflect substitution away from other substitute fuels.

The dynamic behavior of the model is provided by the lag structure of the variables. The specific adjustment mechanism utilized is a geometric distributed lag. However, the underlying lag structure for each variable is not constrained to be the same, and in some cases variables are not lagged at all.

The model allows income and price variables to have different lag structures. To account for these differences, the income variable is modified to represent a form of permanent income. Temporary fluctuations in the income of a region will not affect the permanent demand for fuel. Therefore, when a sector experiences a temporary reduction in income, the quantity of a fuel demanded will not change as dramatically as when the region experiences a permanent reduction in income.

The permanent income (YPERM) is generated by imposing an arbitrary geometric lag structure on current and past disposable incomes, i.e.:

$$(I-9) \quad YPERM(t) = 4/7 Y(t) + 2/7 Y(t-1) + 1/7 Y(t-2)$$

The effect of lagged period prices on current period consumption is also assumed to follow a geometric lag distribution. It is through this lagged adjustment process that the dynamics of demand adjustment are captured.

Using the permanent income variable generated in equation I-9 and a geometric lag structure of the total price index, a stochastic version of equation I-1 is expressed linearly in the logs of the variables as:

$$(I-10) \quad TQ(t) = a + b \sum_i [(q^{**i}) TP(t-i)] + \\ c \text{ PERM}(t) + d \text{ HDD}(t) + e \text{ CDD}(t) + \\ h (TQ(t-1)) + u(t)$$

where i goes from zero to infinity; t represents time period; u(t) is the stochastic error term; a, b, c, d, and e are parameters of the specification, and all the other variables are as defined previously.

Applying the Koyck transformation (assuming |q| < 1) to Equation I-10, we have,

$$(I-11) \quad TQ(t) = a (1-q) + q TQ(t-1) + b TP(t) + c YPERM(t) - \\ c q YPERM(t-1) + d HDD(t) - d q HDD(t-1) + \\ e CDD(t) - e q CDD(t-1) + (u(t) - q u(t-1))$$

There are two points which should be noted regarding the transformed equation I-11. First, this equation is overidentified in some of its parameters. Second, its error term is characterized by an autoregressive structure with q as the autoregressive parameter. The issues surrounding these two points are discussed fully elsewhere {1}.

A similar dynamic procedure is used for the relationship specifying the demand for the share of an individual fuel in total fuel consumption. The effects of past period prices are assumed to follow a geometric lag structure while the availability of natural gas is assumed to be effective only in the current period. Equation I-2 is specified linearly in the logs of the variables as :

$$(I-12) \quad (Q(t)/TQ(t)) = a + b (\sum_i [(g^{**i}) P(t-i)/TP(t-i)]) + \\ c \text{ GSC}(t) + u(t)$$

where i goes from zero to infinity; u(t) is the stochastic error term; and a, b, and c are parameters of the specification. Again applying the Koyck transformation to Equation I-12, we obtain:

=====

Theoretical Structure of RDFOR

$$\begin{aligned}
 \text{(I-13)} \quad (Q(t)/TQ(t)) &= a (1-g) + b (P(t)/TP(t)) + c \text{ GSC}(t) - \\
 &\quad c \, g \, (\text{GSC}(t-1)) + g \, (Q(t-1)/TQ(t-1)) + \\
 &\quad (u(t) - g \, u(t-1))
 \end{aligned}$$

The two points mentioned earlier in relation to the transformed Equation I-11, i.e., overidentification of some parameters and autoregressive lag structure, are also applicable to the transformed equation I-13.

The relationships in Equations I-11 and I-13 provide the structure of the econometric demand model. They provide the basis for obtaining estimates of demand parameters for different fuels across regions. A specification similar to Equation I-11 is estimated for each region, while Equation I-13 is estimated for each major fuel type in each region. The exact form of these specifications, which are finally empirically estimated, are given below:

$$\begin{aligned}
 \text{(I-14)} \quad TQ(t) &= a (1-q) (1-p) + (g-p) TQ(t-1) - \\
 &\quad q \, p \, (TQ(t-2)) + b \, TP(t) - b \, p \, TP(t-1) + \\
 &\quad c \, YPERM(t) - c \, (p+g) \, YPERM(t-1) - \\
 &\quad c \, q \, p \, YPERM(t-2) + d \, HDD(t) - d \, (g+p) \, HDD(t-1) - \\
 &\quad d \, q \, p \, HDD(t-2) + e \, CDD(t) - \\
 &\quad e \, (q+p) \, CDD(t-1) - e \, s \, p \, CDD(t-2) + u(t) - \\
 &\quad (q+p) \, u(t-1) - s \, p \, u(t-2)
 \end{aligned}$$

$$\begin{aligned}
 \text{(I-15)} \quad (Q(t)/TQ(t)) &= a (1-g) (1-p) + (g-p) (Q(t-1)/ \\
 &\quad TQ(t-1)) - q \, p \, (Q(t-2)/TQ(t-2)) + \\
 &\quad b \, (P(t)/TP(t)) - b \, p \, (P(t-1)/ \\
 &\quad TP(t-1)) + c \, \text{GSC}(t) - c \, (g+p) \\
 &\quad \text{GSC}(t-1) - c \, g \, p \, \text{GSC}(t-2) + u(t) - \\
 &\quad (q+p) \, u(t-1) - g \, p \, u(t-2).
 \end{aligned}$$

The parameters in I-14 and I-15 are not related although the same notations are utilized.

B. Transportation Sector Fuel Demands (Submodel 2)

For the most part, the demand for fuel in the transportation sector is modeled by end use. Interfuel substitution is assumed to be less significant in the transportation sector than in the commercial, residential, or manufacturing sectors.

The major components of demand for fuel in the transportation sector are auto highway gasoline use, non-auto highway gasoline and diesel fuel use, rail diesel fuel use, and commercial jet fuel. A summary of the transportation fuel relationships is presented in Table I.5.

The demand for automobile gasoline is determined by modeling vehicle and fleet average miles per gallon separately. Vehicle miles is specified as a function of per capita income, I ; the cost of vehicle operation (including both fuel and time costs), C ; and the unemployment rate, U :

$$(I-16) \quad VM = VM(I, C, U).$$

Automobile demand for gasoline is determined by taking the ratio of automobile vehicle miles to average fleet efficiency. The fleet efficiency is specified as a weighted average of the efficiency of automobiles of various age, assuming new cars are driven more than older cars. Exponential scrapping of the existing fleet is also specified.

TABLE I.5: SUMMARY OF TRANSPORTATION FUEL RELATIONSHIPS

Dependent Variables	Independent Variables
1. Cost of auto driving	Price of gasoline; Time-cost of wages foregone
2. Auto vehicle miles (VM) per capita demanded	Cost; Per capita income; Unemployment rate
3. New car sales	VM; Unemployment rate; Per capita income; VM capacity of last period's existing stock
4. Average mpg of entire stock of autos	Weighted geometric mean of mpg's from current and past vintages
5. Auto gasoline demanded	Auto VM divided by average mpg of auto stock
6. Truck VM	Weighted average of prices of gasoline and diesel fuel; GNP; Industrial Production Index
7. Truck mpg	Interest rate; Unemployment rate; Industrial production index.
8. Truck fuel	Truck VM divided by truck mpg
9. Bus VM	Weighted average of prices of gasoline and diesel fuel; Per capita income
10. Bus mpg	Unemployment rate; Average speed of buses
11. Bus fuel	Bus VM divided by bus mpg
12. Ratio of truck & bus gasoline to truck & bus diesel fuel	Ratio of gasoline to diesel fuel price; Industrial production index; Ratio of single-unit to combination trucks.
13. Rail ton miles	Diesel fuel price (not including highway taxes); Capital expenditures in the railroad industry.

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Theoretical Structure of RDFOR

14. Rail diesel fuel	Rail ton miles; Index of employee compensation (nonfarm).
15. Air passenger miles	Cost per passenger mile of aircraft operation (part of which is the price of jet fuel); Per capita income.
16. Commercial jet fuel	Air passenger miles adjusted by CAB load factor.
17. Non-highway gasoline	Gross national product.
18. Military jet fuel	Constant at 1975 level
19. Liquid gases	Liquid gases lagged one period; FRB index for manufacturing.
20. Residual oil	Residual oil lagged one period; Contemporaneous and lagged rail diesel fuel; Diesel-residual fuel price ratio.
21. Coal	Time

Given the desired vehicle miles, the demand for new cars depends on the capital stock of automobiles. The efficiency of new automobiles is determined by the price of gasoline in the current year. This assumes that future prices of gasoline are expected not to affect current demand.

For trucks and buses, total fuel is estimated as a function of vehicle miles and fleet efficiency without a vintaging effect. Combined automobile, truck, and bus fuel is split between gasoline and diesel fuel on the basis of the relative prices of the fuels, an industrial production index, total vehicle miles, and a measure of the size of the truck stock. This relationship is not dynamic in character although the automobile and truck stocks do imply a short adjustment process. Interfuel substitution is allowed in the truck and bus demand specifications.

Total rail ton miles is specified as a function of diesel fuel price and capital expenditures in the railroad industry. The demand for rail diesel fuel is then specified as a function of rail ton miles.

Commercial jet fuel is a function of air passenger miles adjusted by an airplane load factor in order to account for excess capacity of air flights. Air passenger miles are a function of operating costs, including the price of jet fuel, per capita income, and the price of military type jet fuel.

C. Minor Fuel Categories (Submodel 3)

Separate models for fuel categories not considered thus far make up the third submodel of RDFOR. These include the demand for natural gas, liquid gas and coal in the raw materials sector; commercial demand for asphalt, and liquid gas; industrial demand for petroleum gases and metallurgical coal; and the household/commercial demand for coal.

Except for the commercial demand for liquid gas, price variables are not included in these specifications. Instead, the consumption of these fuels is a function of industrial value added, time trends, lagged consumption variables, and in the case of asphalt, gasoline consumption. The exact specifications, which are estimated in lags of the variables, are given in Table I.6.

TABLE I.6: SUMMARY OF MINOR FUEL RELATIONSHIPS

Fuel Category	Explanatory Variables
Raw Materials Natural Gas	VA28*
Commercial Liquid Gases	Industrial Liquid Gas Price, Lagged Quantity
Feedstocks Liquid Gases	VA28, Lagged VA28, Lagged Quantity
Raw Materials Liquid Gases	Time Trends, Lagged Quantity
Raw Materials Coal	Time Trends, Lagged Quantity
Industrial Petroleum Gases	VA28, Lagged VA28, Lagged Quantities
Commercial Asphalt	Gasoline Consumption, Lagged Output
Household/Commercial Coal	Time, Lagged Quantity
Industrial Metallurgical Coal	VA33*, Lagged VA33, Lagged Quantity

*VA28=Value added in SIC 28 (chemicals).

VA33=Value added in SIC 33 (primary metals).

[1]

See Synergy, Inc., The Regional Demand Forecasting Model: 1977-78 Versions, Final Documentation Report, Washington, D.C.: Synergy, Inc., Sept. 1978.

II. SIMULATION

Simulation of RDFOR is primarily undertaken for two reasons: (1) to test the model's ability to track historical movements in fuel consumption and (2) to predict future fuel consumption patterns.

All simulations and forecasts are "deterministic"{1} and, for the most part, dynamic{2}. The technique utilized in both is "analytical"{3} and is based on the values of estimated elasticities, predicted (adjusted) regional intercepts, and predetermined variables.

This chapter addresses these and other related issues briefly. Section one presents an overview of the inputs required for a typical simulation run. Sections two through four discuss the details of these inputs and the various adjustments to them as they relate to the RDFOR simulation. The emphasis in each of these three sections is on the simulation aspects of the inputs, i.e., their derivation, projection, transformation, estimation, and adjustment. Section five outlines the structure of the simulation model and discusses its derivation from the estimating model. The last section presents a summary of the results and analyzes some of the prevalent issues.

1. An Overview of Simulation Inputs

The general form of a typical simulation model might be presented as:

$$(II-1) \quad Y = f(b, X)$$

where upon encountering $Y(i)$ all $b(i)$'s and $X(i)$'s are known.

Granted that Equation II-1 is a typical estimated econometric model, its right hand side is expected to contain one or more of the following: (1) exogenous variables, (2) current period endogenous variables, (3) lagged endogenous variables, and (4) parameters that have been statistically estimated. All these are represented by b and X in Equation II-1.

Superimposing this simplified structure on the RDFOR model, the left hand side of the latter contains variables on energy

=====
Simulation

consumption by region, consuming sector, and fuel type. These variables have been discussed in the previous chapter. On the right hand side of II-1 representing RDFOR, the inputs (1) through (4) generally are present. To make this presentation manageable, discussion is limited only to the most significant factors of these four types of simulation inputs.

2. Exogenous Variables

Most important among this group are macroeconomic, demographic, weather, and price variables. Each of these will be discussed in turn.

Population, personal disposable income, and value added in manufacturing are the primary macroeconomic inputs provided to the demand model. The first two are the driving economic variables in the residential and commercial sectors and the last variable drives the industrial sector.

These inputs are provided on a DOE regional basis. In addition, certain variables needed to solve the transportation model equations at the national level are also provided. These variables include the unemployment rate, average wages per manhour, several FRB production indices, and structural variables on assumed future driving speeds and population of multiple truck rigs.

Ex-post simulations of the model are based on the historical values of these variables. These historical values constitute a portion of the data base used in the estimation step and they are fully documented elsewhere {4}.

The ex-ante simulations of the model utilize projections of the macro variables based on the average historical growth rates and DRI long-term projections. The regional projections of the macro variables are derived by applying the 1974 regional share projections of the Survey of Current Business to the DRI figures. The national projections are for the most part simply DRI forecasts. See Appendix B of National Energy Outlook 1976.

Since the time patterns of macro variables are usually stable, their projections are generally simple. This is not the case for other exogenous variables, particularly those that fluctuate randomly or have future paths which are indeterminable in advance. Among this group, weather variables are noteworthy. Due to the lack of long-term weather predictability, projections of weather trends are based on the assumption that weather

maintains its historical average values. For the base year, weather adjustments are necessary to make the 1975 consumptions correspond with the mild 1975 weather. The magnitude of these adjustments is obtained by using the estimated elasticities for cooling and heating degree days and comparing the 1975 consumption figures with their corresponding values obtained on the basis of normal weather. These weather effects are incorporated into the constant terms.

The price data in ex-post simulations are taken directly from the demand model consumption data base used in the parameter estimations. The historical prices used are for the years 1973, 1974, and 1975. The latter year is used as the initial point in the price trajectory, and the other two years are needed to calculate lagged values for the simulation equations.

The price paths used in the ex-ante simulations are generated by a linear interpolation between the last historical period price (1975) and the 1985 PIES forecast for a comparable scenario run. Note that PIES prices are "endogenously" determined in the equilibrium process of the PIES system. To this extent, this straight jacket projection of prices is not completely arbitrary.

The prices for which price paths are drawn are for 18 fuels (see Table I.2 for a list of these fuels). All of the prices appear directly in the data base, except for distillate fuel, jet fuel, and residual fuel in the transportation sector. These prices are constructed by adding transportation fuel taxes to the industrial prices of distillate, kerosene and residual oil, respectively.

Specific attention has been paid to the price of residential and industrial electricity. Historically, the differential between these two prices has been decreasing. The forces which generated this leveling can be expected to continue. This means that, whereas constant real markups over time are assumed for all other fuels, the residential electricity price is anticipated to be closer to the industrial price in 1985 than it is now. The 1980, 1985, and 1990 electricity differentials are derived by projecting log-linear time trends of the differential between the average electricity price and each of the sectoral prices.

Each final PIES solution which uses demand model prices, quantities and elasticities as inputs, generates values for each of the 18 prices at the energy equilibrium. These prices are then used as targets for the linear extrapolation of the price paths. Three different extrapolations are considered: (a) dog-leg, (b) ramp, and (c) stair-step. These are demonstrated in Figure II.1. The choice between these three methods of price calculation is somewhat subjective. The first -- dog-leg price paths -- was utilized in the 1976 version of RDFOR. The second -- ramp price construction -- is preferred in the 1977 version since it appears to be more consistent with the intertemporal price patterns used in the revised Oil and Gas Supply Model.

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Simulation

FIGURE II.1

Simulation

3. Current and Lagged Period Endogenous Variables

Current and lagged period endogenous variables appearing on the right hand side of Equation II-1, are treated simultaneously here since they are both "known" endogenous variables in the simulation stream. The first group, i.e., current endogenous variables, should pose no problem in an analytical simulation design. Upon encountering each equation for the simulation purpose, these variables are either already determined within the simulation program or are non-existent because the model is already analytically solved for its unknowns. The second group, if present, consists primarily of region-sector-type specific fuel consumptions that are lagged one or two periods. Since the lag structure of this group of variables is central to the dynamic behavior of the model, the remaining part of this section concentrates on these variables.

Since the 1977 version of RDFOR is initialized to 1975 values, the first simulation year is 1976 and the lagged values which determine the 1976 level of demand are the 1974 and 1975 values. These are known a priori and are generally provided by their historical values.

When forecasting future energy consumption, the method for determining the paths of lagged endogenous variables and indices poses some problems. In a truly dynamic case, values of these variables are supplied intact by the simulated values of the prior period(s). This approach, which sometimes generates unrealistic results, provides the most stringent test of the performance of a model.

Notwithstanding its troubles, the above approach is enlightening and is of interest when we consider a somewhat related issue pertaining to the choice of values for the lagged total quantity index, $TQI(-1)$. Lagged values of this index are calculated in two ways: (1) from the simulating equation for total energy and (2) from the individual values of the fuel simulating equations. If we designate the former by $TQI(-1)$ and the latter by $TQM(-1)$, the choice of dynamics is the selection of $TQI(-1)$ or $TQM(-1)$ as the lagged value in simulating equations. The divergence of these two forms of the index is much less in the NEO/77 simulations than in the NEO/76. In the latter case there has been considerable experimentation with combinations of these two forms. The form that most closely resembles the estimation period structure is finally selected for simulation.

It is important to note that the choice of the lagged index will have differential effects in the simulating equations since it appears in the numerator of the total energy equations and in the denominator of the fuel ratio equation. The reason for the

difference between TQI(-1) and TOM(-1) is twofold. First, the values of the fuel equations are not determined simultaneously with the total energy values. Second, there is no mechanism in the model to adjust the fuel values to produce the forecasted TQI.

Another point relates to the fact that the forecast of the total major fuel quantity index (TQ) depends upon the "current" level of the total fuel price index (TP). The difficulty is that this index cannot be derived for the current period without knowing the current share quantities of the fuels in the index. Fuel prices for individual fuels are inputs to the simulation program, so they are known, but fuel quantities for the individual fuels are derived as shares of TQ (which depends upon TP). TP is approximated by setting fuel quantity shares in the index to last period's share quantities. This will affect the dynamics of the model.

4. Estimated Parameters

The econometric parameter estimates used by the simulating equations are obtained from three separate estimated submodels. The first submodel produces estimates of demand elasticities for the residential, commercial, and industrial sectors using a reduced form model of intraregional fuel substitution. The second submodel produces demand for fuels in the transportation sector using structural models of national use of various transportation modes. The third submodel is a collection of equations which generates demand parameters for the remaining consumption covered by the model, mostly industrial raw materials and feedstocks.

The estimated parameters determine the responsiveness of each of the simulating equations to various predetermined inputs. These parameters remain invariant across scenarios. They are the result of the estimation of historical demand relationships which underlie the variation in demand conditions over the last 15 years and across the various states or regions included in the estimations.

Due to the special treatment of some of the estimated parameters in the simulation model, we categorize them into two groups: (1) estimated intercepts and (2) other estimated parameters. Each will be discussed in turn.

The estimated intercepts determine the initial (or unadjusted) positions of the demand curves. Once the slope of each demand curve is determined, its position can be adjusted for specific

scenario demand shifts. These demand shifts are generally of two distinct types. The first type is a demand offset which represents a shift from one method of satisfying the underlying energy demand to another. Demand offsets for solar and geothermal replacement of traditional fuels is one example. The exogenous shift of the demand curve for natural gas and the concomitant countershift in substitute fuels which occurs in the Deregulation Scenarios is another. The second type of demand shift is the exogenous reduction in the underlying energy demand that results from such conservation initiatives as the DOE Management Program or the weather programs.

Each one of these two types of demand shifts is incorporated into the demand equation by adjusting the relevant intercepts. This implies that the position of the demand curve for a given fuel is shifted by the same percentage amount at all prices.

Section two of this Chapter pointed out some adjustments to the estimated intercepts due to the omission of weather variables in simulation. Other adjustments to the intercepts result from the benchmarking procedure employed. Figure II.2 clarifies this point. At $x(1)$, $y'(1)$ is the predicted value and $y(1)$ is the actual value. To start the model from point $y(1)$, rather than $y'(1)$ requires an adjustment of the coefficient a .

Due to the differences between the estimating and simulating equations, some adjustments to the estimated intercepts are necessary before the simulation equations can be solved. In NEO/76, the intercepts were benchmarked to the geometric average of the 1973 and 1974 actual values. The rationale for this was that both these years had large and opposite transitory components which were not typical of the rest of the sample or the underlying economic relationships. The averaging was a rough method of correcting for this.

With the benefit of 1975 data, which represents a much more typical year than the previous two, the averaging does not seem necessary. The 1975 values are thus used to benchmark the simulating equations i.e., the intercepts of the simulating equations are calculated to reproduce the 1975 actual values. Benchmarking against the predicted rather than the actual values is attempted but has not produced reasonable results. The forecasted values turn out unacceptably below the actual values for 1975, probably because of the interaction between the perversities of the previous two years and the dynamics of the model.

The estimated non-intercept parameters are all converted to elasticities. The RDFOR simulation code is designed to compute elasticities for all fuels (including aggregate elasticities to be used in the iterative solution procedure of the integrating model) for all years beginning with the first simulation year (1976).

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Simulation

FIGURE II.2

Elasticities are numerically computed rather than analytically derived. Since the demand model is actually a collection of several differently constructed sub-models, analytical derivation of elasticities cannot be handled in a standard way across all fuels, but necessarily changes with the elasticity being derived. Moreover, the analytical derivation of the elasticity expressions for the major fuels equations is more complex because of the lag structures of the total energy and fuel/ratio equations and the variable weights in the indices.

Procedurally, RDFOR is solved completely for a set of base level prices and the results are stored as a base case solution. Then, step by step, a price or group of prices is perturbed by + 10 percent in 1990 and new prices (ramp paths) are constructed for use in the simulation period. The model is solved again and stored separately. The elasticities for the perturbation are then calculated by examining differences between the two model solutions.

Figure II.3 demonstrates a form of this price perturbation. The dashed line shows the price path used for comparison with the base run. The price perturbation groups which the model calculates are listed in Table II.1.

TABLE II.1: PRICE PERTURBATION GROUPS

Perturbation	Fuel Group	Code from Table II.2
1	Gasoline	15
2	Electricity	1, 5, 9
3	Natural Gas	2, 6, 10
4	Distillate	3, 7, 11, 16
5	Residual	8, 12, 18
6	Liquid Gases	4, 13
7	Jet Fuel	17
8	Coal	14
9	Oil	3, 4, 7, 8, 11, 12, 13, 15, 16, 17, 18
10	All Fuels	

Elasticities are calculated as the difference between the logarithms of the quantity-price ratios for the perturbed and unperturbed demand points. The following logarithmic approximation formula is used to compute each elasticity:

FIGURE II,3

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Simulation

$$\text{(II-2)} \quad E(\text{NT}, \text{K}, \text{I}) = \ln(\text{QPTB}(\text{I}, \text{K}, \text{NT}) / \text{QBASE}(\text{K}, \text{NT})) / \\
(1.1) ** ((\text{NT} - \text{NO}) / (\text{NTK} - \text{NO}))$$

For: NT = N1, NTK
 N1 = NO + 1

Where: NT = year
 K = fuel
 I = price perturbation
 NO = 1975, generally
 N1 = 1976, generally
 NTK = 1990
 QPTB = perturbed quantity
 QBASE = base quantity

1.1 = ratio of PPTB/PBASE in 1990.

For a given target year Equation II-2 gives the predicted percent change in demand for a given fuel if a given energy price change were rolled in so that the price was one percent higher in the target year.

The log-linearity of the model equations permits a single perturbation to be used to define a gradient of the demand surface for the entire range of possible prices. Some non-linearities in the automobile gasoline model mean that the approximation is not exact, but additional test perturbations indicate that the error is small. It is important to notice that the elasticities derived by perturbing the price path are intertemporal elasticities. A short-run elasticity would be derived by perturbing the price only in the target year and measuring the quantity change in that year. However, the PIES equilibrating mechanism represents price changes that are rolled in over time, hence the intertemporal elasticity is the relevant concept.

5. Structure of the Simulation Model

The structure of the simulation model differs from that of the estimation. The simulating equations are the algebraic transformation of the "deterministic" part of the stochastic estimating equations with several modifications. The form of the simulating equations for the residential, commercial, and industrial sectors appears below:

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Simulation

$$(II-3) \quad TQ = a (TP^{**b}) (YPERM^{**g}) (YPERM(-1)^{**h}) \\ (TQ(-1)^{**d}) POP$$

$$(II-4) \quad (Q/TQ) = a ((P/TP)^{**b}) ((Q/TQ(-1))^{**d})$$

where YPERM represents permanent disposable income, Q is fuel consumption, TQ and TP are geometric quantity and price indices, respectively, and the other symbols represent parameters.

Equations II-3 and II-4 do not contain error terms and are not in per capita form like the estimating equations. In addition, there are no weather or gas availability variables in the simulating equations. Finally, the autoregressive adjustment does not appear in these equations. The justifications for these exclusions follow.

First, the length of the time horizon of the simulation is sufficiently long to mitigate against forecasts of heating and cooling degree days. Furthermore, scenario variations involving weather conditions are not part of the mandate of this modeling effort.

Second, the gas availability variables are difficult to project and, more importantly, the quality of the historical availability data, namely gas service customers, is not sufficiently good to produce reliable elasticity estimates. In general, the computed gas service customers elasticities are too small to produce significant variations across scenario results. Consequently, an alternative strategy for modifying gas availability is employed and is discussed below.

Finally, the exclusion of the autoregressive adjustment is justified on the grounds that the sample period adjustment corrects for errors in measurement which are not continued into the simulation period. The alternative hypothesis of error specification in the equation also deserves some support; it would indicate continuation of the adjustment. However this hypothesis is probably less pronounced than the errors in measurement hypothesis.

As pointed out in the discussion of parameters, the result of the exclusions of these variables in the simulating equations is that the estimated intercepts are no longer valid for the modified form. In addition, the exclusion means that the lagged values to be used in the intercept calculation and the initial year solution of the equations should be adjusted. These points are already fully discussed in sections two through four of this Chapter.

The simulation period differs from the estimation period in another respect. In the estimation period the actual values for fuel consumption were known for each year in the sample and hence the quantity indices, TQ , in Equation II-3 and II-4 could be computed from actual values. This is not true in the simulation period since the predicted index is used to compute the fuel quantities and may not agree with the posterior index constructed after the quantities are known. Therefore, there is a choice of using the last period's predicted index or the posterior index. This problem is already discussed in the section on the current and lagged period endogenous variables.

6. Empirical Results of the Simulation Model

The simulation model combines the inputs discussed in the preceding sections and produces annual demand forecasts for 1976 through 1990 for 30 fuel/sector pairs in the 10 DOE regions. The model also generates regional elasticity arrays for each year which contain the anticipated percent changes in each of the 18 prices. The level of detail of the simulation model is indicated in Table II.2.

Apart from forecasting and elasticity generating, the simulation model can be used in various policy analyses and scenario implementations. Several of the scenarios which are run through the PIES system are initiated by the implementation of alternative specifications in the demand model. In general, these scenarios are implemented by means of combinations of "structural" and "exogenous" shifts. These scenarios will be discussed in detail in the following chapter.

TABLE II.2: FUEL/SECTOR DETAIL MODELED IN THE DEMAND MODEL

		1975	Price
Code	Description	Share	Sensitivity

1	ELRS Residential Electricity	.0374	Joint
2	NGRS Residential Natural Gas	.0937	Joint
3	DFRS Residential Distillate Fuel	.0418	Joint
4	LGRS Residential Liquid Gases	.0107	Joint
5	ELCM Commercial Electricity	.0310	Joint
6	NGCM Commercial Natural Gas	.0475	Joint
7	DFCM Commercial Distillate Fuel	.0816	Joint
8	RFCM Commercial Residual Fuel	.0187	Joint
9	ELIN Industrial Electricity	.0427	Joint
10	NGIN Industrial Natural Gas	.1395	Joint
11	DFIN Industrial Distillate Fuel Oil	.0090	Joint
12	RFIN Industrial Residual Fuel Oil	.0151	Joint
13	LGIN Industrial Liquid Gases	.0063	Joint
14	CLIN Industrial Coal	.0261	Joint
15	GSTR Transportation Gasoline	.2410	Own-joint
16	DFTR Transportation Distillate Fuel Oil	.0440	Own-joint
17	JFTR Transportation Jet Fuel	.0337	Own
18	RFTR Transportation Residual Fuel Oil	.0137	None
19	ELTR Transportation Electricity	.0002	None
20	NGRM Raw Materials Natural Gas	.0127	None
21	LGCM Commercial Liquid Gases	.0013	Own
22	LGTR Transportation Liquid Gases	.0003	None
23	LGFS Feedstocks Liquid Gases	.0296	None
24	LGRM Raw Materials Liquid Gases	.0028	None
25	OLRM Raw Materials Oil	.0098	None
26	PCIN Industrial Petroleum Coke	.0069	None
27	ASCM Commercial Asphalt	.0195	Gasoline
28	CLHC Household/Commercial Coal	.0034	None
29	CLTR Transportation Coal	.0000	None
30	MCIN Industrial Metallurgical Coal	.0430	None
31	ELTT Total Electricity	.1113	
32	NGTT Total Natural Gases	.2934	
33	DFTT Total Distillate Fuel Oil	.1031	
34	RFTT Residual Fuel Oil	.0475	
35	LGTT Total Liquid Gases	.0511	
36	OPTT Total Other Petroleum Projects	.0362	
37	OLTT Total Oil	.5229	
38	CLTT Total Coal	.0725	
39	TTRS Residential All Fuels	.1869	
40	TTCM Commercial All Fuels	.1366	
41	TTIN Industrial All Fuels	.3435	
42	TTTR Transportation All Fuels	.3330	
43	TTTT Total All Fuels	1.0000	

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Simulation

{1}

As opposed to "stochastic."

{2}

Benchmarking is done only in the base period and predicted values of variables are used throughout thereafter..

{3}

No iterative procedure is required since analytical solution is already obtained

{4}

See Synergy, Inc., The Regional Demand Forecasting Model: 1977-78 Versions, Final Documentation Report, Washington, D.C.: Synergy, Inc., Sept. 1978.

III. RDFOR POLICY SIMULATIONS AND POTENTIAL SCENARIOS

This chapter is concerned with some of the policy applications of RDFOR as they relate to the PIES scenario implementations. Section One presents an introductory note on the underlying structure of these scenarios. Section Two briefly discusses a set of empirically implemented scenarios. Section Three presents two additional scenarios in greater detail. These two scenarios are chosen for expository implementation later in this manual.

1. The Underlying Structure of Scenarios

As pointed out in the previous chapter, simulations of RDFOR are generally based on a combination of structural demand shifts and direct demand or exogenous shifts. A list of some of these scenarios and the mix of their structural and demand components is presented in Table III.1.

TABLE III.1: DETAILS OF SCENARIOS IMPLEMENTED THROUGH THE DEMAND MODEL

Scenario	Direct Shifts		Structural Shifts		
	Exogenous Conservation	Solar/ Geother- Mal	Auto Mpg Stand- Ard	Cab Load Factor	Natl. Gas Deregulation
Calibration	(None)	(None)	No	No	Regulate
Reference	REF	REF	Low	No	Regulate
Accelerated	ACC	ACC	Hi	Yes	Regulate
Low Economic Growth	REF	REF	Low	No	Regulate
High Imports	(None)	(None)	No	No	Regulate
Low Imports	ACC	ACC	Hi	Yes	Deregulate
Deregulation	REF	REF	Low	No	Deregulate
Zero Conservation	(None)	REF	Low	No	Regulate

The structural shifts either (1) modify the RDFOR input files or (2) impose parametric changes within the model. An example of (1) is the imposition of a miles per gallon standard in the automobile simulation model. An example of (2) is the adjustment of the load factor for commercial airlines to conform to a Civil Aeronautics Board (CAB) standard of 65 percent. Tables III.2 through III.4 present the actual values used in these examples and their respective effects on energy use.

TABLE III.2: REFERENCE CASE & ACCELERATED CASE MPG STANDARD

Year	Reference	Accelerated
1976	--	--
1977	--	--
1978	18.0	18.0
1979	19.0	19.0
1980	20.0	20.0
1981	21.2	21.5
1982	22.4	23.0
1983	23.6	24.5
1984	24.8	26.0
1985	26.0	27.5
1986	26.0	27.5
1987	26.0	27.5
1988	26.0	27.5
1989	26.0	27.5
1990	26.0	27.5

TABLE III.3: EFFICIENCY STANDARD EFFECTS ON NEW CAR MPG,
AVERAGE MPG AND GASOLINE CONSUMPTION FOR 1985

	New Car Mpg	Average Mpg	Gasoline Cons.
Calibration	18.8	17.2	10800 Tbtu
Reference	26.0	20.1	9400 Tbtu
Accelerated	27.5	20.5	9235 Tbtu

TABLE III.4: CAB LOAD FACTOR EFFECTS ON AIR PASSENGER
MILES AND JET FUEL CONSUMPTION FOR 1985

	Air Revenue Passenger Miles (billions)	Commercial Jet Fuel Consumption
Calibration	368	2740 Tbtu
Accelerated	368	2490 Tbtu

The exogenous shifts take two forms: (1) conservation reductions and (2) demand offsets. The results of an exogenous shift of form (1)--the reductions for the Reference and Accelerated Conservation Scenarios--are shown in Table III.5. The details of the programs that are expected to generate these savings are discussed elsewhere (1). The results of an exogenous shift of form (2)--the demand offsets including direct solar and geothermal--are shown in Table III.6. Total Btu demand is assumed to be conserved for solar and geothermal offsets since they can only be measured against the fuels they are replacing. However, there is a slight Btu (loss/gain) when natural gas becomes more available as a result of the termination of hookup moratoria. This is due to the varying end use efficiency of the substitute fuels.

TABLE III.5: CONSERVATION SAVINGS BY SECTOR

	Coal	Oil	Natural Gas	Electricity	Total
Conservation Savings 1980 Reference Case, Tbtu's					
Residential	12.139	26.231	150.269	108.357	296.996
Commercial	0.000	88.567	86.902	69.860	245.329
Industrial	10.643	12.261	64.636	24.853	112.393
Transportation	0.000	373.400	0.000	0.000	373.400
Total	22.782	500.459	301.807	203.070	1028.117
Conservation Savings 1980 Accelerated Case, Tbtu's					
Residential	7.228	86.723	443.812	158.613	696.376
Commercial	0.000	139.019	135.338	108.572	382.929
Industrial	42.873	67.839	260.378	100.116	471.206
Transportation	0.000	487.312	0.000	0.000	487.312
Total	50.101	780.892	839.528	367.301	2037.822
Conservation Savings 1985 Reference Case, Tbtu's					
Residential	7.506	37.032	170.525	238.884	453.897
Commercial	0.000	121.070	106.012	114.701	341.783
Industrial	4.924	6.703	30.983	12.613	55.223
Transportation	0.000	422.667	0.000	0.000	422.667
Total	12.430	587.472	307.520	366.148	1273.569
Conservation Savings 1985 Accelerated Case, Tbtu's					
Residential	8.005	129.297	508.477	376.571	1022.349
Commercial	0.000	319.168	290.382	330.943	940.493
Industrial	83.904	151.482	528.953	215.245	979.584
Transportation	0.000	535.774	0.000	0.000	535.774
Total	91.909	1135.720	1327.812	922.759	3478.200
Conservation Savings 1990 Reference Case, Tbtu's					
Residential	5.090	39.630	99.200	375.368	519.288
Commercial	0.000	166.172	136.316	179.290	481.778
Industrial	0.000	0.000	0.000	0.0000	0.000
Transportation	0.000	474.375	0.000	0.000	474.375
Total	5.090	680.177	235.516	554.658	1475.440
Conservation Savings 1990 Accelerated Case, Tbtu's					
Residential	7.845	195.915	468.841	603.593	1276.194
Commercial	0.000	534.358	456.716	627.810	1618.883
Industrial	79.094	161.972	509.323	213.094	963.483
Transportation	0.000	602.626	0.000	0.000	602.626
Total	86.939	1494.870	1434.880	1444.497	4461.184

TABLE III.6: DEMAND SHIFTS FOR SOLAR AND GEOTHERMAL SOURCES

	Coal	Oil	Natural Gas	Electricity	Total
Solar/geothermal Substitutions 1980 Reference Case, Tbtu's					
Residential	0.0	0.0	0.0	0.0	0.0
Commercial	0.0	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0	0.0
Transportation	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0
Solar/geothermal Substitutions 1980 Accelerated Case, Tbtu's					
Residential	0.0	0.0	0.0	0.0	0.0
Commercial	0.0	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0	0.0
Transportation	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0
Solar/geothermal Substitutions 1985 Reference Case, Tbtu's					
Residential	0.286	25.206	47.007	28.130	98.629
Commercial	0.000	9.174	18.898	20.360	48.432
Industrial	2.959	11.464	40.021	14.493	68.937
Transportation	0.000	0.000	0.000	0.000	0.000
Total	3.245	45.844	103.926	62.983	214.998
Solar/geothermal Substitutions 1985 Accelerated Case, Tbtu's					
Residential	0.908	87.035	156.973	98.512	343.428
Commercial	0.000	21.584	32.979	37.070	91.633
Industrial	2.959	11.464	40.021	14.493	68.937
Transportation	0.000	0.000	0.000	0.000	0.000
Total	3.867	120.083	229.973	150.075	503.998
Solar/geothermal Substitutions 1990 Reference Case, Tbtu's					
Residential	0.899	137.570	213.516	158.056	510.041
Commercial	0.000	37.804	54.903	68.568	161.275
Industrial	7.697	31.807	101.587	36.592	177.683
Transportation	0.000	0.000	0.000	0.000	0.000
Total	8.596	207.181	370.006	263.216	848.999
Solar/geothermal Substitutions 1990 Accelerated Case, Tbtu's					
Residential	2.332	353.087	551.896	410.251	1317.566
Commercial	0.000	87.416	113.768	145.485	346.669
Industrial	12.383	51.084	162.727	58.569	284.763
Transportation	0.000	0.000	0.000	0.000	0.000
Total	14.715	491.587	828.391	614.305	1948.997

=====

RDFOR Policy Simulations and Potential Scenarios

2. RDFOR Applied Scenarios

This section briefly discusses a set of RDFOR simulation scenarios which have been implemented empirically. The scenarios considered are listed in Table III.1; they will be discussed in the order shown there.

The Calibration Case. The purpose of this scenario is to debug the raw version of the RDFOR model. It represents the results of the model with "no" adjustments imposed on it.

The miles per gallon for automobiles are determined endogenously. The CAB load factor is not imposed and airlines are assumed to maintain their historical 55 percent loads. No demand offsets or conservation reductions are incorporated in the model. Moreover, the demand input files utilized represent "best guess" forecasts of the macroeconomic variables and the adjusted 1975 values.

This scenario does not satisfy the requirements of a Reference Case since it does not include the impacts of the energy economy legislation that has already been passed.

The Reference Case. This scenario satisfies the requirements of a substantive base case. Demand offset and conservation reductions expected to result from legislation already on the books are used to adjust demand. In addition, the Environmental Protection Agency (EPA) miles per gallon standard is imposed. These refinements to the calibration case constitute the most likely future scenario and the template against which all other scenarios should be judged.

The Accelerated Conservation Scenario. This scenario incorporates a more optimistic automobile efficiency standard and adds the CAB load factor. Greater levels of saving from existing conservation programs, and new conservation programs are also included. These represent extensions and additions to current conservation legislation. Higher levels of direct solar and geothermal use are also included. This scenario generates much lower levels of demand because of the very optimistic conservation measures it assumes.

The Low Economic Growth Scenario. This scenario also generates lower levels of demand than the Reference Demand Scenario. However, in this case the lower demand results from lower anticipated economic growth. Specifically, the driving economic variables in the model are assumed to grow at 1 percent below their reference rates. The required modifications to the macro input file are accomplished in the macro preprocessor. All other

demand effects are assumed at the reference level. This scenario reflects the uncertainty associated with macroeconomic forecasts.

The High Oil Imports Scenario. This scenario reflects the most pessimistic case for each demand element based on the assumptions of no solar or geothermal offsets, no conservation of any kind, and no endogenous standards. It employs the normal macro input files. As it turns out, these are the calibration case assumptions.

The Low Oil Imports Scenario. This scenario incorporates all of the positive aspects of each demand component, i.e. accelerated conservation, low economic growth, and natural gas deregulation. The redistribution of demand away from oil and into natural gas lowers imports.

The Deregulation Scenario. This scenario implements the natural gas moratoria termination shifts on a Reference configuration of demand.

The Zero Conservation Scenario. This scenario is designed to evaluate the impacts of the conservation shifts independently. It is the same as the Reference Case otherwise.

3. Selected Scenarios for Implementation

RDFOR is currently being simulated to determine the impact of different aspects of the National Energy Plan (NEP). Two scenarios which are presently being implemented and which are directly relevant to the current status of NEP are presented in more detail in this section. These are currently referred to as versions 1 and 6. Version 1 represents the base case. It incorporates in the model some adjustments to reflect demand offset and conservation reductions as a result of legislation that has already been passed. Version 6 represents the legislative case; it simulates RDFOR to measure the impact of pending legislation on the NEP by the House Ways and Means Committee. Other scenario simulations could be implemented through the instructions provided later in this manual.

{1}

See DOE, National Energy Outlook 1977, Washington, D.C.:
DOE, 1977; Synergy, Inc., The Regional Demand Forecasting Model:
1977-78 Versions, Final Documentation Report, Washington, D.C.:
Synergy, Inc., Sept. 1978.

IV. AN OVERALL VIEW OF THE SOFTWARE PACKAGE

RDFOR "estimations" and "simulations" are run on the DOE twin IBM 370/168 multiprocessing systems using both Superwylbur and TSO interactive facilities. This chapter discusses briefly the characteristics of the software components of RDFOR in that environment.

Section One presents an overview of the "estimation" software. A full discussion of this software is beyond the scope of this manual. Section Two summarizes the "simulation" software and paves the way for its detailed documentation in the next chapter.

1. Estimation Software

The estimation software used is a variant of the time series processor (TSP) developed for DOE by Bronwyn Hall under contract through the MIT Energy Laboratory. The model equations are estimated with the full information maximum likelihood (FIML) procedure of TSP. The deflected gradient method is employed in conjunction with the modified Berndt, Hall, Hall and Hausman Stepsize Algorithm (CEAB).

The above options are selected on the basis of test runs of the model structure with the various other options available in the TSP package. Generally, convergence is achieved at the .0 percent level in over 80 percent of the final estimation runs. The average computing time for a single estimation is 2.5 CPU minutes. Approximately 2000 runs were required to produce the 57 estimations in the set of final runs.

The estimation processing software is written in Superwylbur and the estimation data base is generated using both TSP and the Matrix Arithmetic Programming System (MAPS).

2. Simulation Software

The simulation software was written in-house and is all in FORTRAN G1. For expository purposes, this software is categorized under three sub-packages:

- 1) the preprocessors routines,
- 2) the RDFOR routines, and
- 3) the DFACE routines.

The preprocessors for RDFOR (see Figure I.1, Ch. I) are executed under TSO to produce structured tables for input to the RDFOR simulations. These preprocessors are all small programs (under 100K) and run interactively in less than 20 CPU seconds.

The RDFOR routines are composed of over 1000 lines of code and require approximately 250K and 15 CPU minutes to execute. The results of the RDFOR executions are collected and formatted for input into the PIES equilibrating mechanism by the demand interface routines (DFACE).

The DFACE routines read the regional price, quantity and electricity results of RDFOR and reformat them.

The DFACE routines basically provide a set of I/O channels and perform two functions. First, they read the regional price, quantity and elasticity results of RDFOR and put them out in PIES readable format. Second, they generate detailed Standard Tables for consumption by the public. Normal execution characteristics for DFACE are 250K and 20 minutes CPU time.

Both RDFOR and DFACE make use of several system utilities to reduce storage requirements. The aggregate storage requirements for the full set of demand scenario files, including formal demand model reports, debugging reports, input files and code is 8000 tracks or 50 percent of an IBM 3330 disk.

Since the preprocessors are exogenous to the overall simulation package and they are also discussed fully elsewhere {1}, the rest of this section is limited to a discussion of RDFOR and DFACE routines.

A. RDFOR Software

The RDFOR program is comprised of: a block data, a main, ten subroutines, and three function subprograms. The subroutines are: OSICLK, INPUT, PCHNG, QRES, QCOMM, QTRANS, QIAGG, REPORT, ELAST and SOLSEC. The three function subprograms are named: SUM, TPF and TQHAT.

Schematic IV.1 exhibits the overall design of RDFOR and the various linkages of its components. A brief discussion of each of these components follows:

MAIN(RDFOR): The main routine initializes the run and directs control to nine of the subroutines and one of the function subprograms. It also reads a portion of the inputs, i.e. the control parameter file.

BLOCK DATA: This specifies major labelled common statements and enters the required data for a set of variables.

INPUT: This subroutine reads all the relevant data files for a particular region (excluding the control parameter file, which is read in the main routine).

PCHNG: This subroutine calculates perturbed prices.

QRES: This subroutine controls the solution of the residential sector major fuel demands.

QCOMM: This subroutine controls the solution of the commercial sector major fuel demands.

QIAGG: This subroutine controls the solution of the aggregate industrial sector major fuel demands.

SOLSEC: This subroutine solves the fuel ratio equations for the major fuels models for residential sector, commercial sector and aggregate industrial sector.

REPORT: This subroutine writes out the energy balance report.

ELAST: This subroutine writes out the elasticity report.

TQHAT: This function subprogram calculates values for the total quantity index for each major fuel sector, for each year.

SCHEMATIC IV.1
OVERALL DESIGN OF RDFOR

An Overall View of the Software Package

TPF: This function subprogram calculates value-weighted price and quantity indices for use in the major fuels sectoral models.

SUM: This function subprogram aggregates across fuels and sectors (for a given region).

B. DFACE Software

The DFACE program is comprised of: a block data, a main, nine subroutines, and a function subprogram. The subroutines are: INPUT, RPTPS, ELASPS, PQR, ELSDEM, USQELS, CONCAL, CONSER, WRITER and OSICLK. The function subprogram is named SUM. All these routines--with the exception of OSICLK--are internally provided. The subroutine OSICLK, which is a system program, is the only external component.

Schematic IV.2 outlines the overall design of DFACE. The general linkages of the major components of this program are indicated by the directions of arrows in this schematic. A brief account of each of these components follows:

MAIN (DFACE): As in RDFOR, the main program initializes the run and directs control to various subroutines and subprograms. As shown in Schematic IV.2, MAIN reciprocally established direct linkages with seven of the subroutines.

BLOCK DATA: This establishes a set of global, labelled common statements. It also enters the required data for several major variables.

CONCAL: This subroutine reads all exogenous shifts to be applied to demand quantities. It generates percentage decrements to be written out to a temporary file and reads back into the second DFACE version in a subsequent job step. The categories of shifts are the following:

- 1) Conservation shifts
- 2) Solar and geothermal shifts
- 3) Boiler shifts

CONSER: This subroutine performs exogenous shifts of the demand curve.

WRITER: This subroutine is an output formatting routine. It operates on national arrays.

SCHEMATIC IV.2
OVERALL DESIGN OF DFACE

SUM: This function subprogram aggregates across fuels and sectors (for a given region).

INPUT: This subroutine reads most of the input files.

RPTPS: This subroutine puts out PIES-type price and quantity reports, one region after another, which must then be concatenated.

ELASPS: This subroutine puts out PIES elasticity reports to separate units, by PIES years.

PQR: This subroutine produces a comprehensive price/ quantity report, including Btu and physical unit values and growth rates.

ELSDM: This subroutine produces comprehensive elasticity reports, including price by quantity matrices, by sector for all years.

USQELS: This subroutine accumulates prices and quantities into national arrays as each region is processed by the program. When the last region is read, it calculates the weighted-average prices and then goes on to calculate the national elasticities.

{1}

See DOE, National Energy Outlook 1977, Washington, D.C.: DOE, 1977; Synergy, Inc., The Regional Demand Forecasting Model: 1977-78 Versions, Final Documentation Report, Washington, D.C.: Synergy, Inc., May 1978.

V. DETAILED EXPLANATION AND DOCUMENTATION OF THE SOFTWARE PACKAGE

This chapter is a follow-up to Chapter IV. Its purpose is to (1) present major aspects of the simulation software package and (2) document this package in its entirety. As in Chapter IV, the scope of this chapter is limited only to the Demand Forecasting Model's "simulation" package, i.e. RDFOR and DFACE routines.

Sections One and Two describe the required input files and the generated output files, respectively. Each of these sections, as well as the ones that follow, considers RDFOR and DFACE routines separately. Section Three gives an outline of the required JCL's and provides a complete listing of them. Section Four furnishes a partial list of program variables along with their descriptions. The last two sections present the FORTRAN source code listings of RDFOR and DFACE.

The above sections are presented mostly in tabular forms. These tables, however, are sufficiently detailed and are intended to be self-explanatory.

1. Description of Input Files

Generally, RDFOR utilizes a set of input files which might be categorized under the headings of:

- a) program control information
- b) econometric model parameters
- c) macro variables
- d) historical and projected prices, and
- e) historical quantities.

DFACE also utilizes these files as well as some of the output files produced by RDFOR.

Detailed specifications and descriptions of these input files are presented in Tables V.1 and V.2. RDFOR and DFACE read from approximately 47 and 55 units, respectively. Each of these units is associated with a file name through some JCL statements. Full specification of each file requires some information on its hardware characteristics (Device Type), its whereabouts (Volume

No.), its organization, and finally the structure of the data residing on it (FORMAT). All this information is provided for each unit in Tables V.1 and V.2. Furthermore, a brief expository description pertaining to each unit is also included. This description (1) specifies the contents of the data on the file and (2) facilitates a one-to-one correspondence between that data and the FORTRAN source code variables (see Section 5).

It should be obvious that availability of the inputs mentioned in Table V.1 is prerequisite to the successful execution of the RDFOR program. Similarly, the inputs described in Table V.2 are required for executing DFACE.

The user is encouraged to closely scrutinize the details of Tables V.1 and V.2 before embarking on the execution of the programs.

TABLE V.1: COMPLETE SPECIFICATIONS OF RDFOR INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
08	9900	TS	SYSDATA	88CONTL

FORMAT : (/1X,10(1X,I1)//1X,I2//1X,
I2//1X,L1//1X,L1//1X,2(1X,I1)
//1X,I1//30(1X,I1)//30(1X,I1)//14(1X,I1))

DESCRIPTION: CONTAINS INPUT FOR -- INDICATOR TO DO
ELASTICITY PERTURBATION (IFELAS), INDICATOR FOR PRICE
PERTURBATION FORMULA (IPMETH), INDICATOR FOR METHOD TO
BE USED IN CALCULATING ELASTICITY (IEMETH), SIC CONTROL
INDICATOR (IFSIC), INDICATOR TO USE DIVISIA INDEX
IDENTITY (IFINDX), PARAMETERS (IPARM), LAST DATA YEAR
(IYBNCH), INDICATOR FOR BENCHMARKING METHOD (IBMETH),
FUEL INDEXING METHOD INDICATOR (IDMETH) AND GAS
REGULATION NORMALIZATION INDICATOR (IFNHKP).

<> <> <> <>

05	9901	---	CARD	CARD
----	------	-----	------	------

FORMAT : (2X,14A4)

DESCRIPTION: CONTAINS INFORMATION ABOUT - RUN
IDENTIFICATION (IDRUN).

<> <> <> <>

01	1001	TS	SYSDATA	88MACRO
----	------	----	---------	---------

FORMAT : (17(/),17(5X,14F9.0/),5X,14F9.0)

DESCRIPTION: CONTAINS ALL MACRO VARIABLES FOR BOTH MAJOR
FUELS AND TRANSPORTATION FUELS--POPULATION
(POP(NT),NT=1,18), PER CAPITA INCOME (YCAP(NT)), VALUE
ADDED (VA(K,NT),K=1,9), GAS SERVICE CUSTOMERS
(GSC(K,NT),K=1,3)

<> <> <> <>

01	1002	TS	SYSDATA	88MACRO
----	------	----	---------	---------

FORMAT : (3(/),17(6X,9F14.4/),6X,9F14.4)

DESCRIPTION: CONTAINS UNEMPLOYMENT RATE (RU(NT)), JRWSSE
(NT), AVERAGE HOURLY EARNINGS (A HEE A(NT)), AVERAGE
AUTO SPEED (ASPEED(NT)), TECHNICAL EFFICIENCY
(EFF(NT)), RAILROAD CAPITAL EXPENDITURE (CXPRL(NT)),
RATIO OF AIR PASSENGER MILES (ARPAIR(NT)), CAB LOAD

TABLE V.1: COMPLETE SPECIFICATIONS OF RDFOR INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FACTORS (LODFAC{NT}) AND NATIONAL POPULATION
(NPOP{NT}).

<> <> <> <>

01	1004	TS	SYSDATA	&&MACRO
----	------	----	---------	---------

FORMAT : (3(/), 17(6X, 9F14.4 /), 6X, 9F14.4, 23(/))

DESCRIPTION: CONTAINS INFORMATION ABOUT VARIABLES
--X58D44{NT}, INTEREST RATE (RA{NT}), AVERAGE SPEED OF
BUSES (AVSPBS{NT}), SINGLE UNIT/ TRUCK COMBINATION
(SUTCOM{NT}), MILITARY JET FUEL (FPJTML{NT}), JOAF{NT},
PER CAPITA INCOME IN 1958 (YP58N{NT}), GROSS
NATIONAL PRODUCT IN 1958 (GNP58{NT}) AND INDUSTRIAL
PRODUCTION INDEX (KFRB{NT}).

<> <> <> <>

02	1005	TS	SYSDATA	&&PRICE
----	------	----	---------	---------

FORMAT : (25(/), 17(10X, 8F10.3 /), 10X, 8F10.3)

DESCRIPTION: CONTAINS MATRIX OF UNPERTURBED PRICES
((PBASE(K, NT), K=1, 8) NT=1, 18)

<> <> <> <>

02	1006	TS	SYSDATA	&&PRICE
----	------	----	---------	---------

FORMAT : (2(/), 17(10X, 10F10.3 /), 10X, 10F10.3)

DESCRIPTION: CONTAINS MATRIX OF UNPERTURBED PRICES
((PBASE(K, NT), K=9, 18), NT=1, 18)

<> <> <> <>

02	1055	TS	SYSDATA	&&PRICE
----	------	----	---------	---------

FORMAT : (4(/), 17(10X, 8F10.3 /), 10X, 8F10.3)

DESCRIPTION: CONTAINS MATRIX OF PERTURBED PRICES.
((PNDASE(K, NT), K=1, 8), NT=1, 18).

<> <> <> <>

02	1056	TS	SYSDATA	&&PRICE
----	------	----	---------	---------

FORMAT : (2(/), 17(10X, 10F10.3 /), 10X, 10F10.3, 42(/))

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Detailed Explanation and Documentation of the Software Package

TABLE V.1: COMPLETE SPECIFICATIONS OF RDFOR INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS MATRIX OF PERTURBED PRICES.
 ({PNBASE(K,NT),K=9,18),NT=1,18)

<> <> <> <>

03	2008	TS	SYSDATA	E&PARAM
----	------	----	---------	---------

FORMAT : (10(/),10X,3A4,4(/),4(10X,8F10.5/),10X,8F10.5)

DESCRIPTION: CONTAINS FOLLOWING PARAMETERS -- NUMBER OF SECTORS (NMSEC(1,L),L=1,3), INTERCEPTS (AT(1)), PRICE COEFFICIENTS (BT(1)), LAGGED QUANTITY COEFFICIENTS (LT(1)), TRANSPORTATION PARAMETERS, (PARMT(1,L),L=1,5), INCOME COEFFICIENTS (AF(IK)), GAS SERVICE CUSTOMER COEFFICIENTS (BF(IK)), POPULATION COEFFICIENTS (LF(IK)) AND MAJOR FUEL PARAMETERS ((PARMF(IK,L),L=1,5),IK=1,4).

<> <> <> <>

03	1008	TS	SYSDATA	E&PARAM
----	------	----	---------	---------

FORMAT : (1(/),10X,3A4,4(/),4(10X,8F10.5/),10X,8F10.5)

DESCRIPTION: CONTAINS FOLLOWING PARAMETERS
 -- (NMSEC(2,L),L=1,3),
 AT(2),BT(2),LT(2), (PARMT(2,L),L=1,5), AF(IK),
 BF(IK),LF(IK) AND ((PARMF(IK,L),L=1,5), IK=1,4).

<> <> <> <>

03	1009	TS	SYSDATA	E&PARAM
----	------	----	---------	---------

FORMAT : (1(/),10X,3A4,4(/),6(10X,8F10.5/),10X,8F10.5)

DESCRIPTION: CONTAINS DATA FOR THE FOLLOWING VARIABLES
 -- (NMSEC(3,L),L=1,3), AT(3), BT(3), LT(3),
 (PARMT(3,L),L=1,5), AF(IK),BF(IK), LF(IK) AND
 ((PARMF(IK,L),L=1,5), IK=9,14).

<> <> <> <>

03	2010	TS	SYSDATA	E&PARAM
----	------	----	---------	---------

FORMAT : (/72X,3A4)

DESCRIPTION: CONTAINS INPUT FOR (NMSEC(5,L),L=1,3).

<> <> <> <>

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Detailed Explanation and Documentation of the Software Package

TABLE V.1: COMPLETE SPECIFICATIONS OF RDFOR INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

03	1010	TS	SYSDATA	E&PARAM
----	------	----	---------	---------

FORMAT : (/4(10X,5F10.4/),10X,5F10.4)

DESCRIPTION: CONTAINS INPUT FOR AUTO MODEL SHARE COEFFICIENTS (ATRSH(I),I=1,5) AND GASOLINE TRANSPORTATION SHARE COEFFICIENTS (GTRSH(K,I),I=1,5),K=1,4).

<> <> <> <>

03	2011	TS	SYSDATA	E&PARAM
----	------	----	---------	---------

FORMAT : (10X,3A4,9X,A4)

DESCRIPTION: CONTAINS DATA FOR (NMSEC(4,L),L=1,3) AND REGIONS (NMREG).

<> <> <> <>

03	1011	TS	SYSDATA	E&PARAM
----	------	----	---------	---------

FORMAT : (3(/),16(10X,9F10.5/),10X,9F10.5)

DESCRIPTION: CONTAINS DATA FOR -- ((AA(I),AB(I),AL(I),AE(I),AUT(I),AG(I),AR(I),AUF(I),AM(I)),I=1,3), ((TBA(I),TBB(I),TBL(I),TBE(I),TBT(I),TBG(I),TBR(I),TBF(I),TBM(I)),I=1,5), ((OA(I),OB(I),OL(I),OE(I),OT(I),OG(I),OR(I),OF(I),OM(I)),I=1,9).

<> <> <> <>

03	1012	TS	SYSDATA	E&PARAM
----	------	----	---------	---------

FORMAT : (3(/),22X,510.2,2F10.5/21X,6F10.2/17(27X,5F10.5/),27X,5F10.5)

DESCRIPTION: CONTAINS DATA FOR -- (AUF(I),I=1,7), (ADFC(I),I=1,6), (SHADJ(NT,I),I=1,5,NT=1,18).

<> <> <> <>

03	1022	TS	SYSDATA	E&PARAM
----	------	----	---------	---------

FORMAT : (8(/),10X,9F10.3/10X,9F10.3/10X,9F10.3).

TABLE V.1: COMPLETE SPECIFICATIONS OF RDFOR INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS DATA FOR
 (PRMNA(K), K=1,9), (PRMNB(K), K=1,9)
 (PRMNG(K), K=1,9), (PRMNL(K), K=1,9).

<> <> <> <>

04	1013	TS	SYSDATA	EEQINIT
----	------	----	---------	---------

FORMAT :
 {29(/), 30(6X, A4, F10.3, 20X, 6F15.1/), 12(6X, A4, 30X,
 6F15.1/), 6X, A4, 30X, 6F15.1)

DESCRIPTION: FOR NT=1,3 AND K=1,30 IT CONTAINS INITIAL
 VALUES FOR NUMBER OF FUELS (NMFUEL(K)), CONVERSION
 FACTORS (CFAC(K)), INITIAL QUANTITIES (QTY(K,NT)),
 LAGGED QUANTITIES (QTYPRE(K,NT)). AND FOR NT=1,3 AND
 K=31,43 IT CONTAINS VALUES OF NMFUEL(K), QTY(K,NT) AND
 QTYPRE(K,NT).

<> <> <> <>

04	2014	TS	SYSDATA	EEQINIT
----	------	----	---------	---------

FORMAT : (2(/), 40X, 3(F21.1, 9X)/40X,
 3(F21.1, 9X)/40X, 3(F21.1, 9X))

DESCRIPTION: CONTAINS DATA FOR -- ((TOFHAT(I,NT), NT=1,3),
 I=1,3).

<> <> <> <>

04	1014	TS	SYSDATA	EEQINIT
----	------	----	---------	---------

FORMAT : (3(/), 42(40X, 6F15.1/), 40X, 6F15.1)

DESCRIPTION: CONTAINS DATA FOR -- ({(QTYN(K,NT),
 QTYPRN(K,NT)), NT=1,3), I=1,3).

<> <> <> <>

04	1015	TS	SYSDATA	EEQINIT
----	------	----	---------	---------

FORMAT : {3(/), 20(40X, F15.4, 15X, F15.4,
 15X, F15.4/), 40X, F15.4, 15X, F15.4, 15X, F15.4)

DESCRIPTION: FOR NT = 1,3 IT CONTAINS TRANSPORTATION MODEL
 INITIAL VALUES OF -- AMPG(NT), VM(NT), GAS(NT), COST(NT),
 THETA(NT), OMEGA(NT), PCR(NT), TRBSGS(NT), TRBSDF(NT),

=====

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TABLE V.1: COMPLETE SPECIFICATIONS OF RDFOR INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

AMPGBS(NT), RATIO(NT), VMTRK(NT), VMBUS(NT), TMRL(NT),
 RLDF(NT), TPJFT(NT), PMAIR(NT), FPJTC(NT), FBTB(NT),
 FPLGT(NT) AND FPRFT(NT).

<> <> <> <>

60	--	TS	SYSDATA	E&MPG
----	----	----	---------	-------

FORMAT : FREE FORMAT

DESCRIPTION: CONTAINS POLICY OPTION INFORMATION-- MILES PER
 GALLON STANDARD (MPG).

<> <> <> <>

61	--	TS	SYSDATA	E&LODFAC
----	----	----	---------	----------

FORMAT : FREE FORMAT

DESCRIPTION: CONTAINS POLICY OPTION INFORMATION -- LOAD
 FACTOR STANDARD (LODFAC).

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
01	3000	CATALOG	DISK	CONTL

FORMAT : (/1X,I2//3(1X,I2)//1X,I2//1X,I2///4(1X,I1))

DESCRIPTION: CONTAINS CONTROL
PARAMETERS--KREG, (IYR(I), I=1,3), ICON, ISCALE AND
ISHIFT.

<> <> <> <>

05	3001	----	CARD	CARD
----	------	------	------	------

FORMAT : (1X,2A4/1X,2A4/1X,2A4/1X,2A4/1X,2A4)

DESCRIPTION: CONTAINS CONTROL
PARAMETERS--IDCNTL, ICNS, ICODE, IVERSN AND IRNNME.

<> <> <> <>

03	3010	TS	SYSDATA	&TIMEDATE
----	------	----	---------	-----------

FORMAT : (1X,2A4,1X,A2,1X,A2)

DESCRIPTION: CONTAINS CONTROL
PARAMETERS--NDATE, TIME(1) AND(2)

<> <> <> <>

10	999	CATALOG	DISK	QINIT
----	-----	---------	------	-------

FORMAT : (29(1), 29(10X,F10.31), 10X,F10.3)

DESCRIPTION: CONTAINS CONVERSION FACTORS--(CFAC(K), K=1,30).

<> <> <> <>

IM=21	1000	TS	SYSDATA	&PQFEA01
-------	------	----	---------	----------

FORMAT : (//////////35X,A4//)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG).

<> <> <> <>

IM=21	1001	TS	SYSDATA	&PQFEA01
-------	------	----	---------	----------

FORMAT : (6X,9(9X,I2))

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS YEAR DATA--(NUR(NT),NT=1,9) AND
(NYR(NT),NT=10,18).

<> <> <> <>

IM=21	1002	TS	SYSDATA	EPQFEA01
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS--(NMFUEL(K),
K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT),
NT=10,18).

<> <> <> <>

IM=21	1003	TS	SYSDATA	EPQFEA01
-------	------	----	---------	----------

FORMAT : (6X,9F11.3)

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT),NT=1,9) AND
(PRC(K,NT),NT=10,18).

<> <> <> <>

IM=21	1050	TS	SYSDATA	EPQFEA01
-------	------	----	---------	----------

FORMAT : (35X,A4//)

DESCRIPTION: CONTAINS REGIONS (NMREG).

<> <> <> <>

IM=21	1052	TS	SYSDATA	EPQFEA01
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(K) K=1,42), (QTYPTB(IPR,K,NT), NT=1,9)
AND (QTYPTB(IPR,K,NT) NT=10,18).

<> <> <> <>

IM=21	1053	TS	SYSDATA	EPQFEA01
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3////////////////////////////////////)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18).

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

IM=22	1000	TS	SYSDATA	8PQFEA02
-------	------	----	---------	----------

FORMAT : (//////////35X,A4//)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG).

<> <> <> <>

IM=22	1001	TS	SYSDATA	8PQFEA02
-------	------	----	---------	----------

FORMAT : (6X,9(9X,I2))

DESCRIPTION: CONTAINS YEAR DATA--(NUR(NT),NT=1,9) AND
(NYR(NT),NT=10,18).

<> <> <> <>

IM=22	1002	TS	SYSDATA	8PQFEA02
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS--(NMFUEL(K),
K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT),
NT=10,18).

<> <> <> <>

IM=22	1003	TS	SYSDATA	8PQFEA02
-------	------	----	---------	----------

FORMAT : (6X,9F11.3)

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT),NT=1,9) AND
(PRC(K,NT),NT=10,18).

<> <> <> <>

IM=22	1050	TS	SYSDATA	8PQFEA02
-------	------	----	---------	----------

FORMAT : (35X,A4//)

DESCRIPTION: CONTAINS REGIONS (NMREG).

<> <> <> <>

IM=22	1052	TS	SYSDATA	8PQFEA02
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
 FUELS-- (NMFUEL(K) K=1,42), (QTYPTB(IPR,K,NT), NT=1,9) :
 AND (QTYPTB(IPR,K,NT) NT=10,18) .

<> <> <> <>

IM=22	1053	TS	SYS DATA	EPQFEA02
-------	------	----	----------	----------

FORMAT : (1X,A4,1X,9F11.3////////////////////////////////////)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
 FUELS-- (NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18) .

<> <> <> <>

IM=23	1000	TS	SYS DATA	EPQFEA03
-------	------	----	----------	----------

FORMAT : (//////////35X,A4//)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG) .

<> <> <> <>

IM=23	1001	TS	SYS DATA	EPQFEA03
-------	------	----	----------	----------

FORMAT : (6X,9(9X,I2))

DESCRIPTION: CONTAINS YEAR DATA-- (NUR(NT), NT=1,9) AND
 (NYR(NT), NT=10,18) .

<> <> <> <>

IM=23	1002	TS	SYS DATA	EPQFEA03
-------	------	----	----------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS-- (NMFUEL(K) ;
 K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT),
 NT=10,18) .

<> <> <> <>

IM=23	1003	TS	SYS DATA	EPQFEA03
-------	------	----	----------	----------

FORMAT : (6X,9F11.3)

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT), NT=1,9) AND
 (PRC(K,NT), NT=10,18) .

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

IM=23	1050	TS	SYSDATA	EPQFEA03
-------	------	----	---------	----------

FORMAT : (35X,A4//)

DESCRIPTION: CONTAINS REGIONS (NMREG).

<> <> <> <>

IM=23	1052	TS	SYSDATA	EPQFEA03
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
 FUELS--(NMFUEL(K) K=1,42), (QTYPTB(IPR,K,NT), NT=1,9)
 AND (QTYPTB(IPR,K,NT) NT=10,18).

<> <> <> <>

IM=23	1053	TS	SYSDATA	EPQFEA03
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3////////////////////////////////////)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
 FUELS--(NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18).

<> <> <> <>

IM=24	1000	TS	SYSDATA	EPQFEA04
-------	------	----	---------	----------

FORMAT : (//////////35X,A4//)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG).

<> <> <> <>

IM=24	1001	TS	SYSDATA	EPQFEA04
-------	------	----	---------	----------

FORMAT : (6X,9(9X,I2))

DESCRIPTION: CONTAINS YEAR DATA--(NUR(NT),NT=1,9) AND
 (NYR(NT),NT=10,18).

<> <> <> <>

IM=24	1002	TS	SYSDATA	EPQFEA04
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS--(NMFUEL(K), K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT), NT=10,18).

<> <> <> <>

IM=24	1003	TS	SYSDATA	EPQFEA04
-------	------	----	---------	----------

FORMAT : (6X,9F11.3)

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT), NT=1,9) AND (PRC(K,NT), NT=10,18).

<> <> <> <>

IM=24	1050	TS	SYSDATA	EPQFEA04
-------	------	----	---------	----------

FORMAT : (35X,A4//)

DESCRIPTION: CONTAINS REGIONS (NMREG).

<> <> <> <>

IM=24	1052	TS	SYSDATA	EPQFEA04
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR FUELS--(NMFUEL(K) K=1,42), (QTYPTB(IPR,K,NT), NT=1,9) AND (QTYPTB(IPR,K,NT) NT=10,18).

<> <> <> <>

IM=24	1053	TS	SYSDATA	EPQFEA04
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3////////////////////////////////////)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR FUELS--(NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18).

<> <> <> <>

IM=25	1000	TS	SYSDATA	EPQFEA05
-------	------	----	---------	----------

FORMAT : (//////////35X,A4//)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG).

<> <> <> <>

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TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=25	1001	TS	SYSDATA	8PQFEA05

FORMAT : (6X,9(9X,I2))

DESCRIPTION: CONTAINS YEAR DATA--(NUR(NT),NT=1,9) AND
(NYR(NT),NT=10,18).

<> <> <> <>

IM=25	1002	TS	SYSDATA	8PQFEA05
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS--(NMFUEL(K),
K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT),
NT=10,18).

<> <> <> <>

IM=25	1003	TS	SYSDATA	8PQFEA05
-------	------	----	---------	----------

FORMAT : (6X,9F11.3)

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT),NT=1,9) AND
(PRC(K,NT),NT=10,18).

<> <> <> <>

IM=25	1050	TS	SYSDATA	8PQFEA05
-------	------	----	---------	----------

FORMAT : (35X,A4//)

DESCRIPTION: CONTAINS REGIONS (NMREG).

<> <> <> <>

IM=25	1052	TS	SYSDATA	8PQFEA05
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(K) K=1,42), (QTYPTB(IPR,K,NT), NT=1,9)
AND (QTYPTB(IPR,K,NT) NT=10,18).

<> <> <> <>

IM=25	1053	TS	SYSDATA	8PQFEA05
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3////////////////////////////////////

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18).

<> <> <> <>

IM=26	1000	TS	SYSDATA	EPQFEA06
-------	------	----	---------	----------

FORMAT : (//////////35X,A4//)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG).

<> <> <> <>

IM=26	1001	TS	SYSDATA	EPQFEA06
-------	------	----	---------	----------

FORMAT : (6X,9(9X,I2))

DESCRIPTION: CONTAINS YEAR DATA--(NUR(NT),NT=1,9) AND
(NYR(NT),NT=10,18).

<> <> <> <>

IM=26	1002	TS	SYSDATA	EPQFEA06
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS--(NMFUEL(K),
K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT),
NT=10,18).

<> <> <> <>

IM=26	1003	TS	SYSDATA	EPQFEA06
-------	------	----	---------	----------

FORMAT : (6X,9F11.3)

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT),NT=1,9) AND
(PRC(K,NT),NT=10,18).

<> <> <> <>

IM=26	1050	TS	SYSDATA	EPQFEA06
-------	------	----	---------	----------

FORMAT : (35X,A4//)

DESCRIPTION: CONTAINS REGIONS (NMREG).

<> <> <> <>

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

IM=26	1052	TS	SYS DATA	8PQFEA06
-------	------	----	----------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(K) K=1,42), (QTYPTB(IPR,K,NT), NT=1,9)
AND (QTYPTB(IPR,K,NT) NT=10,18).

<> <> <> <>

IM=26	1053	TS	SYS DATA	8PQFEA06
-------	------	----	----------	----------

FORMAT : (1X,A4,1X,9F11.3////////////////////////////////////)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18).

<> <> <> <>

IM=27	1000	TS	SYS DATA	8PQFEA07
-------	------	----	----------	----------

FORMAT : (//////////35X,A4//)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG).

<> <> <> <>

IM=27	1001	TS	SYS DATA	8PQFEA07
-------	------	----	----------	----------

FORMAT : (6X,9(9X,I2))

DESCRIPTION: CONTAINS YEAR DATA--(NUR(NT),NT=1,9) AND
(NYR(NT),NT=10,18).

<> <> <> <>

IM=27	1002	TS	SYS DATA	8PQFEA07
-------	------	----	----------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS--(NMFUEL(K),
K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT),
NT=10,18).

<> <> <> <>

IM=27	1003	TS	SYS DATA	8PQFEA07
-------	------	----	----------	----------

FORMAT : (6X,9F11.3)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT),NT=1,9) AND
(PRC(K,NT),NT=10,18).

<> <> <> <>

IM=27	1050	TS	SYSDATA	8PQFEA07
-------	------	----	---------	----------

FORMAT : (35X,A4//)

DESCRIPTION: CONTAINS REGIONS (NMREG).

<> <> <> <>

IM=27	1052	TS	SYSDATA	8PQFEA07
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(K) K=1,42), (QTYPTB(IPR,K,NT), NT=1,9)
AND (QTYPTB(IPR,K,NT) NT=10,18).

<> <> <> <>

IM=27	1053	TS	SYSDATA	8PQFEA07
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3////////////////////////////////////)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18).

<> <> <> <>

IM=28	1000	TS	SYSDATA	8PQFEA08
-------	------	----	---------	----------

FORMAT : (//////////35X,A4//)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG).

<> <> <> <>

IM=28	1001	TS	SYSDATA	8PQFEA08
-------	------	----	---------	----------

FORMAT : (6X,9(9X,I2))

DESCRIPTION: CONTAINS YEAR DATA--(NUR(NT),NT=1,9) AND
(NYR(NT),NT=10,18).

<> <> <> <>

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

IM=28	1002	TS	SYSDATA	8PQFEA08
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS--(NMFUEL(K),
K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT),
NT=10,18).

<> <> <> <>

IM=28	1003	TS	SYSDATA	8PQFEA08
-------	------	----	---------	----------

FORMAT : (6X,9F11.3)

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT), NT=1,9) AND
(PRC(K,NT), NT=10,18).

<> <> <> <>

IM=28	1050	TS	SYSDATA	8PQFEA08
-------	------	----	---------	----------

FORMAT : (35X,A4//)

DESCRIPTION: CONTAINS REGIONS (NMREG).

<> <> <> <>

IM=28	1052	TS	SYSDATA	8PQFEA08
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(K) K=1,42); (QTYPTB(IPR,K,NT), NT=1,9)
AND (QTYPTB(IPR,K,NT) NT=10,18).

<> <> <> <>

IM=28	1053	TS	SYSDATA	8PQFEA08
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3////////////////////////////////////)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18).

<> <> <> <>

IM=29	1000	TS	SYSDATA	8PQFEA09
-------	------	----	---------	----------

FORMAT : (/////////////////////////////////35X,A4//)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG) .

<> <> <> <>

IM=29 1001 TS SYSDATA &PQFEA09

FORMAT : (6X,9(9X,I2))

DESCRIPTION: CONTAINS YEAR DATA--(NUR(NT),NT=1,9) AND
(NYR(NT),NT=10,18) .

<> <> <> <>

IM=29 1002 TS SYSDATA &PQFEA09

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS--(NMFUEL(K),
K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT),
NT=10,18) .

<> <> <> <>

IM=29 1003 TS SYSDATA &PQFEA09

FORMAT : (6X,9F11.3)

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT),NT=1,9) AND
(PRC(K,NT),NT=10,18) .

<> <> <> <>

IM=29 1050 TS SYSDATA &PQFEA09

FORMAT : (35X,A4//)

DESCRIPTION: CONTAINS REGIONS (NMREG) .

<> <> <> <>

IM=29 1052 TS SYSDATA &PQFEA09

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(K) K=1,42), (QTYPTB(IPR,K,NT), NT=1,9)
AND (QTYPTB(IPR,K,NT) NT=10,18) .

<> <> <> <>

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=29	1053	TS	SYSDATA	EPQFEA09

FORMAT : (1X,A4,1X,9F11.3//)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
FUELS--(NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18).

<> <> <> <>

IM=30	1000	TS	SYSDATA	EPQFEA10
-------	------	----	---------	----------

FORMAT : (//35X,A4//)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG).

<> <> <> <>

IM=30	1001	TS	SYSDATA	EPQFEA10
-------	------	----	---------	----------

FORMAT : (6X,9(9X,I2))

DESCRIPTION: CONTAINS YEAR DATA--(NUR(NT), NT=1,9) AND
(NYR(NT), NT=10,18).

<> <> <> <>

IM=30	1002	TS	SYSDATA	EPQFEA10
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS QUANTITY DATA FOR FUELS--(NMFUEL(K),
K=1,43), (QTY(K,NT), NT=1,9), AND (QTY(K,NT),
NT=10,18).

<> <> <> <>

IM=30	1003	TS	SYSDATA	EPQFEA10
-------	------	----	---------	----------

FORMAT : (6X,9F11.3)

DESCRIPTION: CONTAINS PRICE DATA--PRC(K,NT), NT=1,9) AND
(PRC(K,NT), NT=10,18).

<> <> <> <>

IM=30	1050	TS	SYSDATA	EPQFEA10
-------	------	----	---------	----------

FORMAT : (35X,A4//)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS REGIONS (NMREG).

<> <> <> <>

IM=30	1052	TS	SYSDATA	8PQFEA10
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
 FUELS--(NMFUEL(K) K=1,42), (QTYPTB(IPR,K,NT), NT=1,9)
 AND (QTYPTB(IPR,K,NT) NT=10,18).

<> <> <> <>

IM=30	1053	TS	SYSDATA	8PQFEA10
-------	------	----	---------	----------

FORMAT : (1X,A4,1X,9F11.3////////////////////////////////////)

DESCRIPTION: CONTAINS PERTURBED QUANTITY DATA FOR
 FUELS--(NMFUEL(43)) AND (QTYPTB(IPR,43,NT), NT=10,18).

<> <> <> <>

IJ=31	2010	TS	SYSDATA	8EFEA01
-------	------	----	---------	---------

FORMAT : (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,
 10I2/48X,A2/61X,2I2/26X,30I2/25X,30I2/26X,14I2)

DESCRIPTION: CONTAINS ELASTICITIES AND CONTROL
 PARAMETERS--IDRUN,IYBNCH,IPMETH,IEMETH,
 IFELAS,IPSIC,IPARM,IBMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=31	2000	TS	SYSDATA	8EFEA01
-------	------	----	---------	---------

FORMAT : (29X,A4,2X,3A4//)

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG, (NMSEC
 (I,L), L=1,3)

<> <> <> <>

IJ=31	2003	TS	SYSDATA	8EFEA01
-------	------	----	---------	---------

FORMAT : (6X,13F9.3)

DESCRIPTION: CONTAINS ELASTICITIES--(E(NT,KELAS
 (K,1),IPR),K=1,ILS)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
<> <> <> <>				
IJ=32	2010	TS	SYSDATA	&EFEA02

FORMAT : (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,
10I2/48X,A2/61X,2I2/26X,30I2/25X,30I2/26X,14I2)

DESCRIPTION: CONTAINS ELASTICITIES AND CONTROL
PARAMETERS--IDRUN,IYBNCH,IPMETH,IEMETH,
IFELAS,IFSIC,IPARM,IBMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=32	2000	TS	SYSDATA	&EFEA02
-------	------	----	---------	---------

FORMAT : (29X,A4,2X,3A4//)

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG,{NMSEC
(I,L), L=1,3)

<> <> <> <>

IJ=32	2003	TS	SYSDATA	&EFEA02
-------	------	----	---------	---------

FORMAT : (6X,13F9.3)

DESCRIPTION: CONTAINS ELASTICITIES--(E{NT,KELAS
(K,1),IPR),K=1,ILS)

<> <> <> <>

IJ=33	2010	TS	SYSDATA	&EFEA03
-------	------	----	---------	---------

FORMAT : (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,
10I2/48X,A2/61X,2I2/26X,30I2/25X,30I2/26X,14I2)

DESCRIPTION: CONTAINS ELASTICITIES AND CONTROL
PARAMETERS--IDRUN,IYBNCH,IPMETH,IEMETH,
IFELAS,IFSIC,IPARM,IBMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=33	2000	TS	SYSDATA	&EFEA03
-------	------	----	---------	---------

FORMAT : (29X,A4,2X,3A4//)

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG,{NMSEC
(I,L), L=1,3)

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

IJ=33	2003	TS	SYSDATA	8EFEA03
-------	------	----	---------	---------

FORMAT : (6X,13F9.3)

DESCRIPTION: CONTAINS ELASTICITIES--(E{NT,KELAS
(K,1),IPR),K=1,ILS)

<> <> <> <>

IJ=34	2010	TS	SYSDATA	8EFEA04
-------	------	----	---------	---------

IFELAS,IFSIC,IPARM,IBMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=34	2000	TS	SYSDATA	8EFEA04
-------	------	----	---------	---------

FORMAT : (29X,A4,2X,3A4//)

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG,(NMSEC
(I,L), L=1,3)

<> <> <> <>

IJ=34	2003	TS	SYSDATA	8EFEA04
-------	------	----	---------	---------

FORMAT : (6X,13F9.3)

DESCRIPTION: CONTAINS ELASTICITIES--(E{NT,KELAS
(K,1),IPR),K=1,ILS)

<> <> <> <>

IJ=35	2010	TS	SYSDATA	8EFEA05
-------	------	----	---------	---------

FORMAT : (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,
10I2/48X,A2/61X,2I2/26X,30I2/25X,30I2/26X,14I2)

DESCRIPTION: CONTAINS ELASTICITIES AND CONTROL
PARAMETERS--IDRUN,IYBNCH,IPMETH,IEMETH,
IFELAS,IFSIC,IPARM,IEMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=35	2000	TS	SYSDATA	8EFEA05
-------	------	----	---------	---------

FORMAT : (29X,A4,2X,3A4//)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DSPACE INPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG, (NMSEC
(I,L), L=1,3)

<> <> <> <>

IJ=35 2003 TS SYSDATA &EFEA05

FORMAT : (6X,13F9.3)

DESCRIPTION: CONTAINS ELASTICITIES--(E(NT,KELAS
(K,1),IPR),K=1,ILS)

<> <> <> <>

IJ=36 2010 TS SYSDATA &EFEA06

FORMAT : (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,
10I2/48X,A2/61X,2I2/26X,30I2/25X,30I2/26X,14I2)

DESCRIPTION: CONTAINS ELASTICITIES AND CONTROL
PARAMETERS--IDRUN,IYBNCH,IPMETH,IEMETH,
IFELAS,IFSIC,IPARM,IBMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=36 2000 TS SYSDATA &EFEA06

FORMAT : (29X,A4,2X,3A4//)

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG, (NMSEC
(I,L), L=1,3)

<> <> <> <>

IJ=36 2003 TS SYSDATA &EFEA06

FORMAT : (6X,13F9.3)

DESCRIPTION: CONTAINS ELASTICITIES--(E(NT,KELAS
(K,1),IPR),K=1,ILS)

<> <> <> <>

IJ=37 2010 TS SYSDATA &EFEA07

FORMAT : (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,
10I2/48X,A2/61X,2I2/26X,30I2/25X,30I2/26X,14I2)

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS ELASTICITIES AND CONTROL
PARAMETERS--IDRUN,IYBNCH,IPMETH,IEMETH,
IFELAS,IFSIC,IPARM,IBMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=37 2000 TS SYSDATA &EFEA07

FORMAT : (29X,A4,2X,3A4//)

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG,(NMSEC
(I,L), L=1,3)

<> <> <> <>

IJ=37 2003 TS SYSDATA &EFEA07

FORMAT : (6X,13F9.3)

DESCRIPTION: CONTAINS ELASTICITIES--(E{NT,KELAS
(K,1),IPR),K=1,ILS)

<> <> <> <>

IJ=38 2010 TS SYSDATA &EFEA08

FORMAT : (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,
10I2/48X,A2/61X,2I2/26X,30I2/25X,30I2/26X,14I2)

DESCRIPTION: CONTAINS ELASTICITIES AND CONTROL
PARAMETERS--IDRUN,IYBNCH,IPMETH,IEMETH,
IFELAS,IFSIC,IPARM,IBMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=38 2000 TS SYSDATA &EFEA08

FORMAT : (29X,A4,2X,3A4//)

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG,(NMSEC
(I,L), L=1,3)

<> <> <> <>

IJ=38 2003 TS SYSDATA &EFEA08

FORMAT : (6X,13F9.3)

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS ELASTICITIES--(E{NT,KELAS
(K,1),IPR),K=1,ILS)

<> <> <> <>

IJ=39 2010 TS SYSDATA &EFEA09

FORMAT : (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,
10I2/48X,A2/61X,2I2/26X,30I2/25X,30I2/26X,14I2)

DESCRIPTION: CONTAINS ELASTICITIES AND CONTROL
PARAMETERS--IDRUN,IYBNCH,IPMETH,IEMETH,
IFELAS,IFSIC,IPARM,IBMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=39 2000 TS SYSDATA &EFEA09

FORMAT : (29X,A4,2X,3A4//)

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG,(NMSEC
(I,L), L=1,3)

<> <> <> <>

IJ=39 2003 TS SYSDATA &EFEA09

FORMAT : (6X,13F9.3)

DESCRIPTION: CONTAINS ELASTICITIES--(E{NT,KELAS
(K,1),IPR),K=1,ILS)

<> <> <> <>

IJ=40 2010 TS SYSDATA &EFEA10

FORMAT : (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,
10I2/48X,A2/61X,2I2/26X,30I2/25X,30I2/26X,14I2)

DESCRIPTION: CONTAINS ELASTICITIES AND CONTROL
PARAMETERS--IDRUN,IYBNCH,IPMETH,IEMETH,
IFELAS,IFSIC,IPARM,IBMETH,IDMETH, AND IFNHKP

<> <> <> <>

IJ=40 2000 TS SYSDATA &EFEA10

FORMAT : (29X,A4,2X,3A4//)

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS REGIONS AND SECTORS--NMREG, (NMSEC
(I,L), L=1,3)

<> <> <> <>

IJ=40	2003	TS	SYSDATA	8EFEA10
-------	------	----	---------	---------

FORMAT : (6X,13F9.3)

DESCRIPTION: CONTAINS ELASTICITIES--(E(NT,KELAS
(K,1),IPR),K=1,ILS)

<> <> <> <>

02	1010	CATALOG	DISK	MRBIGAS
----	------	---------	------	---------

FORMAT : (//////////5(10X,4F13.0/)/////////)

DESCRIPTION: CONTAINS BOILER SHIFTS
INFORMATION--{(SHBOIL(KK,LL), LL=1,4), KK=1,5}.

<> <> <> <>

01	3001	CATALOG	DISK	CONTL
----	------	---------	------	-------

FORMAT : ('1X,A4)

DESCRIPTION: CONTAINS NUMBER OF REGIONS (NMREG).

<> <> <> <>

11	9900	CATALOG	DISK	SHIFTS
----	------	---------	------	--------

FORMAT : (15X,3(4X,A4))

DESCRIPTION: CONTAINS PERCENTAGE CONSERVATION
SHIFTS--(ICPRG(I), I=1,3).

<> <> <> <>

11	9901	CATALOG	DISK	SHIFTS
----	------	---------	------	--------

FORMAT : (5X,F8.4,2F8.2)

DESCRIPTION: CONTAINS CONSERVATION SAVINGS--(CSAVE(K,NT,I),
K=1,30;NT=1;I=1,3).

<> <> <> <>

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
11	9902	CATALOG	DISK	SHIFTS
FORMAT : (//9(4X,3F10.4/),4X,3F10.4)				
DESCRIPTION: CONTAINS WEATHERIZATION CONSERVATION SHIFTS--(WTPCT(NT,J),NT=1,3;J=1,10).				
<> <> <> <>				
11	9903	CATALOG	DISK	SHIFTS
FORMAT : (//8X,2(6X,A4))				
DESCRIPTION: CONTAINS SOLAR/GEOTHERMAL VALUES--(ISGPRG(I),I=1,2).				
<> <> <> <>				
11	9904	CATALOG	DISK	SHIFTS
FORMAT : (8X,6F10.4)				
DESCRIPTION: CONTAINS SOLAR/GEOTHERMAL SAVINGS--(SGSAVE(K,NT,I),K=1,30;NT=1,3;I=1,2).				
<> <> <> <>				
11	9905	CATALOG	DISK	SHIFTS
FORMAT : (34X,3A4/24X,A4)				
DESCRIPTION: CONTAINS CONTROL PARAMETERS--ITITLE AND IBPRG.				
<> <> <> <>				
11	9906	CATALOG	DISK	SHIFTS
FORMAT : (8X,3F20.4)				
DESCRIPTION: CONTAINS BOILER SHIFT INFORMATION--(BSAVE(K,NT)K=1,30;NT=1,3).				
<> <> <> <>				
14	7000	CATALOG	DISK	SHIFTS
FORMAT : (1X,3A4/)				
DESCRIPTION: CONTAINS TITLE INFORMATION--ITITLE.				

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.2: COMPLETE SPECIFICATIONS OF DFACE INPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

14	7001	CATALOG	DISK	SHIFTS
----	------	---------	------	--------

FORMAT : (1X,9F12.4)

DESCRIPTION: CONTAINS REGIONAL CONSERVATION SAVINGS,
 SOLAR/GEOTHERMAL AND BOILER SHIFT
 INFORMATION--((CONSAV(K,NT,IREG),
 SOLGEO(K,NT,IREG),BOILSH(K,NT,IREG), K=1,30;NT=1,3).

2. Description of Output Files

Procedurally, the ultimate objective of the simulation demand model is to produce a set of files which contain prices, quantities, and elasticities for the PIES integrating framework. Taken together, these files contain information needed to define a set of region and fuel specific demand curves, which PIES uses in the equilibrium solution routines.

The DFACE routines provide the above information and write them into two files which are generally referred to as the demand point report (DEMPPT) and the PIES elasticity report (EPIES). The DEMPT report contains (a) regional quantity projections for 1980, 1985, and 1990 of each of the thirty basic (excluding aggregations) fuel categories in standard physical units per day, and (b) the initial eighteen price projections for 1980, 1985 and 1990 used to derive the quantities. These prices are in dollars per physical unit. The EPIES report contains regional retail elasticities for each of the thirty fuel sector pairs by each of the ten price perturbations which the model generates for 1980, 1985 and 1990.

RDFOR also produces a set of output files which might be categorized under the headings of:

- a) Elasticity Subreport
- b) Energy Balance Subreport
- c) Price and Quantity tables
- d) Debugging Information, and
- e) Other Reports as needed.

Detailed specifications and descriptions of these output files are presented in Tables V.3 and V.4. The design of these tables are similar to Tables V.1 and V.2 discussed in the previous section.

For each unit or each data set name the following information is provided:

- a) Unit number associated with the file
- b) Format label number used to write the file
- c) File's whereabouts (Volume Number)
- d) Hardware characteristics of the file (Device Type)
- e) DSN for the file
- f) FORTRAN code format employed to write the file, and
- g) A brief description of the file.

=====

Detailed Explanation and Documentation of the Software Package

As in the case of input files, the summary description (g) is intended to (1) specify the contents of the data on the file and (2) facilitate a one-to-one correspondence between the data and the FORTRAN source code variables (See Section 5).

The contents of Tables V.3 and V.4 are expected to be self-explanatory. Further details and scrutinization of these tables are left to the user.

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
06	9910	-----	PRINTER	PRINTER

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,', TIME = ',A2,':',A2//1X,' BENCH YEAR =
 ',I2/1X,'PRICE PATH METHOD =
 ', 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,' WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,' GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
 (IFSIC), PARAMETERS (IPARM), INDICATOR FOR
 BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD
 INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION
 INDICATOR (IFNHKP).

<> <> <> <>

JDEBUG=71 9910 TS SYSDATA &&DEBUGR1

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,', TIME = ',A2,':',A2//1X,' BENCH YEAR =
 ',I2/1X,'PRICE PATH METHOD =
 ', 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,' WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,' GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
<p>ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR (IFSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION INDICATOR (IFNHKP).</p>				

<> <> <> <>

JDEBUG=71	1000	TS	SYSDATA	&&DEBUGR1
-----------	------	----	---------	-----------

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, PERTURBING
 ',A4,'P'//T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,
 'BETA',T42,'TQ-L',T48,'LAMBDA',T62,'INCOME',
 T77,'GSSHR',T89,'POP(VA)',T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES (NMFUEL (KLAS (ILAST))) IN ALL RELEVANT SECTORS ((NMSEC (ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=71	1001	TS	SYSDATA	&&DEBUGR1
-----------	------	----	---------	-----------

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'//
 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L',
 T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
 T107,'HDD',T121,'CDD'//)

DESCRIPTION:
 CONTAINS DEBUGGING REPORT-BASE
 CASE (NMSEC (ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=71	1002	TS	SYSDATA	&&DEBUGR1
-----------	------	----	---------	-----------

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,
 4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES:
 NYRR(NT),
 TQHATT,AT1 (ISEC),TPP,BT (ISEC),TQHATT,LT (ISEC),
 (XT (IX,NT),PARMT (ISEC,1X),1X=1,NXT).

<> <> <> <>

JDEBUG=71	1003	TS	SYSDATA	&&DEBUGR1
-----------	------	----	---------	-----------

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
'FUEL REPORT, PERTURBING ',A4,'P'//
T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA',
T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME',
T85,'GSSHR',T97,'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR:
NMFUEL(KK) AND NMFUEL(KLAS(ILAS)).

<> <> <> <>

JDEBUG=71	1004	TS	SYSDATA	E&DEBUGR1
-----------	------	----	---------	-----------

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
'FUEL REPORT, BASE CASE'//
T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA
',T40,'Q/TQ-L',
T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,
'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NM FUEL(KK).

<> <> <> <>

JDEBUG=71	1005	TS	SYSDATA	E&DEBUGR1
-----------	------	----	---------	-----------

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,
4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
(NYRR(NT),TQHATT,AT1(ISEC),
TPP,BT(ISEC),TQHATL,LT(ISEC),{XT(IX,NT),
PARMT(ISEC,IX),IX=1,NXT)

<> <> <> <>

JDEBUG=71	1006	TS	SYSDATA	E&DEBUGR1
-----------	------	----	---------	-----------

FORMAT : {1H1,'VALUE WEIGHTS AND PRICES, PERTURBING
',A4,'P'// 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
NMFUEL(KLAS(ILAS) NMFUEL(KSEC(K)), K=1,NK).

<> <> <> <>

JDEBUG=71	1007	TS	SYSDATA	E&DEBUGR1
-----------	------	----	---------	-----------

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

FORMAT : {1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
6X,6(6X,A4,6X)}

DESCRIPTION: CONTAINS DEBUG REPORT FOR: {NMFUEL{KSEC(K)},
K=1,NK}.

<> <> <> <>

JDEBUG=71	1008	TS	SYSDATA	&&DEBUGR1
-----------	------	----	---------	-----------

FORMAT : {/1X,I4,1X,6(F8.4,F8.2)}

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
NXRR(NT), {NK{K,NT}, PRC(KSEC(K),NT), K=1,NK}.

<> <> <> <>

JDEBUG=72	9910	TS	SYSDATA	&&DEBUGR2
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FORMAT : {1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
,2A4,', TIME = ',A2,':',A2//1X,'BENCH YEAR =
,I2/1X,'PRICE PATH METHOD =
, 'DONE - {ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,' WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
,L1/1X,'TRANS MODEL PARAMETERS - {AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
,30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)}

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF
REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR
(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
(IPMETH), INDICATOR FOR METHOD TO BE USED IN
CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
(IFSIC), PARAMETERS (IPARM), INDICATOR FOR
BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD
INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION
INDICATOR (IFNHKP).

<> <> <> <>

JDEBUG=72	1000	TS	SYSDATA	&&DEBUGR2
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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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	FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,' SECTOR'//1X,'TOTAL MAJORS INFORMATION, PERTURBING ',A4,'P'// T9,'TQNDX',T19,'INT',T25,'TPNDX' ,T34,'BETA',T42,'TQ-L',T48, 'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)', T107,'HDD',T121,'CDD'//)			
--	---	--	--	--

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES
 (NMFUEL (KLAS(ILAST))) IN ALL RELEVANT SECTORS
 ((NMSEC(ISEC,M), M-1,3)).

<> <> <> <>

JDEBUG=72	1001	TS	SYSDATA	&&DEBUGR2
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	FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,' SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'// T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L', T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)', T107,'HDD',T121,'CDD'//)			
--	---	--	--	--

DESCRIPTION:
 CONTAINS DEBUGGING REPORT-BASE
 CASE (NMSEC(ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=72	1002	TS	SYSDATA	&&DEBUGR1
-----------	------	----	---------	-----------

	FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1, 4F7.3,F7.0,5F7.3)			
--	--	--	--	--

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES:
 NYRR(NT),
 TQHATT,AT1(ISEC),TPP,BT(ISEC),TQHATT,LT(ISEC),
 (XT(IX,NT),PARMT(ISEC,1X),1X=1,NXT).

<> <> <> <>

JDEBUG=72	1003	TS	SYSDATA	&&DEBUGR2
-----------	------	----	---------	-----------

	FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X, 'FUEL REPORT, PERTURBING ',A4,'P'// T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA', T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,'POP(VA)',T115,'HDD',T129,'CDD'//)			
--	--	--	--	--

DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR:
 NMFUEL(KK) AND NMFUEL(KLAS(ILAS)).

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

<> <> <> <>

JDEBUG=72 1004 TS SYSDATA &&DEBUGR2

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
 'FUEL REPORT, BASE CASE'//
 T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA
 ',T40,'Q/TQ-L',
 T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,
 'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NMFUEL(KK).

<> <> <> <>

JDEBUG=72 1005 TS SYSDATA &&DEBUGR2

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,
 4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
 (NYRR(NT),TQHATT,AT1(ISEC),
 TPP,BT(ISEC),TQHATL,LT(ISEC),(XT(IX,NT),
 PARMT(ISEC,IX),IX=1,NXT)

<> <> <> <>

JDEBUG=72 1006 TS SYSDATA &&DEBUGR2

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, PERTURBING
 ',A4,'P'// 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
 NMFUEL(KLAS(ILAS) NMFUEL(KSEC(K)), K=1,NK).

<> <> <> <>

JDEBUG=72 1007 TS SYSDATA &&DEBUGR2

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NMFUEL(KSEC(K)),
 K=1,NK).

<> <> <> <>

JDEBUG=72 1008 TS SYSDATA &&DEBUGR2

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FORMAT : (/1X,I4,1X,6(F8.4,F8.2))

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
 NXRR (NT), (NK (K,NT), PRC (KSEC (K),NT), K=1,NK).

<> <> <> <>

JDEBUG=73	9910	TS	SYSDATA	E&DEBUGR3
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,' TIME = ',A2,' : ',A2//1X,' BENCH YEAR =
 ',I2/1X,' PRICE PATH METHOD = ',
 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X, 'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,' TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,' FUEL INTERCEPT METHODS -
 ',30I2/1X,' FUEL INDEXING ', 'METHODS - ',30I2/1X,' GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
 (IFSIC), PARAMETERS (IPARM), INDICATOR FOR
 BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD
 INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION
 INDICATOR (IFNHKP).

<> <> <> <>

JDEBUG=73	1000	TS	SYSDATA	E&DEBUGR3
-----------	------	----	---------	-----------

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, PERTURBING
 ',A4,'P'//
 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L',
 T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
 T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES
 (NMFUEL (KLAS (ILAST))) IN ALL RELEVANT SECTORS
 ((NMSEC (ISEC,M), M-1,3)).

<> <> <> <>

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
JDEBUG=73	1001	TS	SYSDATA	&&DEBUGR3

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'//
1 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',
T42,'TQ-L',
T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
T107,'HDD',T121,'CDD'//)

DESCRIPTION:
CONTAINS DEBUGGING REPORT-BASE
CASE (NMSEC(ISEC,M), M=1,3).

<> <> <> <>

JDEBUG=73	1002	TS	SYSDATA	&&DEBUGR3
-----------	------	----	---------	-----------

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES
NYRR(NT),TQHATT,
AT1(ISEC),TPP,BT(ISEC),TQHATT,LT(ISEC), (XT(IX,NT),
PARMT(ISEC,IX),IX=1,NXT).

<> <> <> <>

JDEBUG=73	1003	TS	SYSDATA	&&DEBUGR3
-----------	------	----	---------	-----------

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
'FUEL REPORT, PERTURBING ',A4,'P'//
T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA',
T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME',
T85,'GSSHR',T97,'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR:
NMFUEL(KK) AND NMFUEL(KLAS(ILAS)).

<> <> <> <>

JDEBUG=73	1004	TS	SYSDATA	&&DEBUGR3
-----------	------	----	---------	-----------

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
'FUEL REPORT, BASE CASE'//
T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA'
,T40,'Q/TQ-L',
T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,
'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NMFUEL(KK).

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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<> <> <> <>

JDEBUG=73	1005	TS	SYSDATA	88DEBUGR3
-----------	------	----	---------	-----------

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,
4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
(NYRR(NT),TQHATT,AT1(ISEC),
TPP,BT(ISEC),TQHATL,LT(ISEC),(XT(IX,NT),
PARMT(ISEC,IX),IX=1,NXT)

<> <> <> <>

JDEBUG=73	1006	TS	SYSDATA	88DEBUGR3
-----------	------	----	---------	-----------

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, PERTURBING
,A4,'P'// 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
NMFUEL(KLAS(ILAS)NMFUEL(KSEC(K)), K=1,NK).

<> <> <> <>

JDEBUG=73	1007	TS	SYSDATA	88DEBUGR3
-----------	------	----	---------	-----------

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NMFUEL(KSEC(K)),
K=1,NK).

<> <> <> <>

JDEBUG=73	1008	TS	SYSDATA	88DEBUGR3
-----------	------	----	---------	-----------

FORMAT : (/1X,I4,1X,6(F8.4,F8.2))

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
NXRR(NT),(NK(K,NT), PRC(KSEC(K),NT),K=1,NK).

<> <> <> <>

JDEBUG=74	9910	TS	SYSDATA	88DEBUGR4
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
,2A4,', TIME = ',A2,': ',A2//1X,'BENCH YEAR =

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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',I2/1X,'PRICE PATH METHOD = ',
'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)
    
```

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA (IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR (IFSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION INDICATOR (IFNHKP).

<> <> <> <>

JDEBUG=74	1000	TS	SYSDATA	E&DEBUGR4
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FORMAT      : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
SECTOR'// 1X,'TOTAL MAJORS INFORMATION, PERTURBING
',A4,'P'//
T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L',
T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
T107,'HDD',T121,'CDD'//)
    
```

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES (NMFUEL (KLAS(ILAST))) IN ALL RELEVANT SECTORS ((NMSEC (ISEC,M), M-1,3)).

<> <> <> <>

JDEBUG=74	1001	TS	SYSDATA	E&DEBUGR4
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FORMAT      : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'//
1 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',
T42,'TQ-L',
T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
T107,'HDD',T121,'CDD'//)
    
```

DESCRIPTION: CONTAINS DEBUGGING REPORT-BASE CASE (NMSEC (ISEC,M), M=1,3)).

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
<> <> <> <>				
JDEBUG=74	1002	TS	SYSDATA	88DEBUGR4
FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,4F7.3,F7.0,5F7.3)				
DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES NYRR{NT},TQHATT, AT1{ISEC},TPP,BT{ISEC},TQHATT,LT{ISEC},{XT{IX,NT}, PARMT{ISEC,IX},IX=1,NXT).				
<> <> <> <>				
JDEBUG=74	1003	TS	SYSDATA	88DEBUGR4
FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X, 'FUEL REPORT, PERTURBING ',A4,'P'// T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA', T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,'POP(VA)',T115,'HDD',T129,'CDD'//)				
DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR: NMFUEL{KK} AND NMFUEL(KLAS{ILAS}).				
<> <> <> <>				
JDEBUG=74	1004	TS	SYSDATA	88DEBUGR4
FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X, 'FUEL REPORT, BASE CASE'// T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA' ',T40,'Q/TQ-L', T48,'LAMBDA',T57,'TQHAT',T70,'INCOME',T85,'GSSHR',T97, 'POP(VA)',T115,'HDD',T129,'CDD'//)				
DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NMFUEL{KK}.				
<> <> <> <>				
JDEBUG=74	1005	TS	SYSDATA	88DEBUGR4
FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3, 4F7.3,F7.0,5F7.3)				
DESCRIPTION: CONTAINS DEBUG REPORT FOR: {NYRR{NT},TQHATT,AT1{ISEC}, TPP,BT{ISEC},TQHATL,LT{ISEC},{XT{IX,NT}, PARMT{ISEC,IX},IX=1,NXT)				

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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<> <> <> <>

JDEBUG=74	1006	TS	SYSDATA	88DEBUGR4
-----------	------	----	---------	-----------

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, PERTURBING
' ,A4,'P'// 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
NMFUEL(KLAS(ILAS) NMFUEL(KSEC(K)), K=1,NK).

<> <> <> <>

JDEBUG=74	1007	TS	SYSDATA	88DEBUGR2
-----------	------	----	---------	-----------

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NMFUEL(KSEC(K)),
K=1,NK).

<> <> <> <>

JDEBUG=74	1008	TS	SYSDATA	88DEBUGR4
-----------	------	----	---------	-----------

FORMAT : (/1X,I4,1X,6(F8.4,F8.2))

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
NXRR(NT), (NK(K,NT), PRC(KSEC(K),NT), K=1,NK).

<> <> <> <>

JDEBUG=75	9910	TS	SYSDATA	88DEBUGR5
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
' ,2A4,' TIME = ',A2,' : ',A2//1X,'BENCH YEAR =
' ,I2/1X,'PRICE PATH METHOD = ',
' DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X, 'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF
REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
	(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA (IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR (IFPIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION INDICATOR (IFNHKP).			

<> <> <> <>

JDEBUG=75 1000 TS SYSDATA &&DEBUGR5

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
SECTOR'// 1X,'TOTAL MAJORS INFORMATION, PERTURBING
'A4,'P'//
T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L',
T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES
(NMFUEL (KLAS(ILAST))) IN ALL RELEVANT SECTORS
(NMSEC (ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=75 1001 TS SYSDATA &&DEBUGR5

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'//
1 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',
T42,'TQ-L',
T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT-BASE CASE
(NMSEC (ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=75 1002 TS SYSDATA &&DEBUGR5

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES
NYRR(NT),TQHATT,
AT1(ISEC),TPP,BT(ISEC),TQHATT,LT(ISEC), (XT(IX,NT),
PARMT(ISEC,IX),IX=1,NXT).

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
<> <> <> <>				
JDEBUG=75	1003	TS	SYSDATA	&&DEBUGR5
FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X, 'FUEL REPORT, PERTURBING ',A4,'P'// T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA', T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,'POP(VA)',T115,'HDD',T129,'CDD'//)				
DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR: NMFUEL(KK) AND NMFUEL(KLAS(ILAS)).				
<> <> <> <>				
JDEBUG=75	1004	TS	SYSDATA	&&DEBUGR5
FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X, 'FUEL REPORT, BASE CASE'// T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA' ',T40,'Q/TQ-L', T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97, 'POP(VA)',T115,'HDD',T129,'CDD'//)				
DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NMFUEL(KK).				
<> <> <> <>				
JDEBUG=75	1005	TS	SYSDATA	&&DEBUGR5
FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3, 4F7.3,F7.0,5F7.3)				
DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NYRR(NT),TQHATT,AT1(ISEC), TPP,BT(ISEC),TQHATL,LT(ISEC),(XT(IX,NT), PARMT(ISEC,IX),IX=1,NXT)				
<> <> <> <>				
JDEBUG=75	1006	TS	SYSDATA	&&DEBUGR5
FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, PERTURBING ',A4,'P'// 6X,6(6X,A4,6X))				
DESCRIPTION: CONTAINS DEBUG REPORT FOR: NMFUEL(KLAS(ILAS) NMFUEL(KSEC(K)), K=1,NK).				
<> <> <> <>				

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
JDEBUG=75	1007	TS	SYSDATA	&&DEBUGR5

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NMFUEL(KSEC(K)),
K=1,NK).

<> <> <> <>

JDEBUG=75	1008	TS	SYSDATA	&&DEBUGR5
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FORMAT : (/1X,I4,1X,6(F8.4,F8.2))

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
NXRR(NT), (NK(K,NT), PRC(KSEC(K),NT), K=1,NK).

<> <> <> <>

JDEBUG=76	9910	TS	SYSDATA	&&DEBUGR6
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FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
,2A4,', TIME = ',A2,':',A2//1X,' BENCH YEAR =
,12/1X,'PRICE PATH METHOD = ',
'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,' WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
,L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF
REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR
(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
(IPMETH), INDICATOR FOR METHOD TO BE USED IN
CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
(IFSIC), PARAMETERS (IPARM), INDICATOR FOR
BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD
INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION
INDICATOR (IPNHKP).

<> <> <> <>

JDEBUG=76	1000	TS	SYSDATA	&&DEBUGR6
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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, PERTURBING
 ',A4,'P'//
 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L',
 T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
 T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES
 (NMFUEL (KLAS(ILAST))) IN ALL RELEVANT SECTORS
 ((NMSEC (ISEC,M), M-1,3)).

<> <> <> <>

JDEBUG=76 1001 TS SYSDATA &&DEBUGR6

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'//
 1 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',
 T42,'TQ-L',
 T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89, 'POP(VA)',
 T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT-BASE CASE
 (NMSEC (ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=76 1002 TS SYSDATA &&DEBUGR6

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES
 NYRR(NT),TQHATT,
 AT1(ISEC),TPP,BT(ISEC),TQHATT,LT(ISEC), (XT(IX,NT),
 PARMT(ISEC,IX),IX=1,NXT).

<> <> <> <>

JDEBUG=76 1003 TS SYSDATA &&DEBUGR6

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
 'FUEL REPORT, PERTURBING ',A4,'P'//
 T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA',
 T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME',
 T85,'GSSHR',T97, 'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR:
 NMFUEL(KK) AND NMFUEL(KLAS(ILAS)).

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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<> <> <> <>

JDEBUG=76	1004	TS	SYSDATA	88DEBUGR6
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FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
 'FUEL REPORT, BASE CASE'//
 T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA
 ',T40,'Q/TQ-L',
 T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,
 'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NMFUEL(KK).

<> <> <> <>

JDEBUG=76	1005	TS	SYSDATA	88DEBUGR6
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FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,
 4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
 {NYRR(NT),TQHATT,AT1(ISEC),
 TPP,BT(ISEC),TQHATL,LT(ISEC), (XT(IX,NT),
 PARMT(ISEC,IX),IX=1,NXT)

<> <> <> <>

JDEBUG=76	1006	TS	SYSDATA	88DEBUGR6
-----------	------	----	---------	-----------

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, PERTURBING
 ',A4,'P'// 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
 NMFUEL(KLAS(ILAS) NMFUEL(KSEC(K)), K=1,NK).

<> <> <> <>

JDEBUG=76	1007	TS	SYSDATA	88DEBUGR6
-----------	------	----	---------	-----------

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR: {NMFUEL(KSEC(K)),
 K=1,NK).

<> <> <> <>

JDEBUG=76	1008	TS	SYSDATA	88DEBUGR6
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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

FORMAT : (/1X,I4,1X,6(F8.4,F8.2))

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
 NXRR(NT), (NK(K,NT), PRC(KSEC(K),NT), K=1,NK).

<> <> <> <>

JDEBUG=77 9910 TS SYSDATA &&DEBUGR7

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,' TIME = ',A2,' : ',A2//1X,'BENCH YEAR =
 ',I2/1X,'PRICE PATH METHOD = ',
 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,' WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
 (IFSIC), PARAMETERS (IPARM), INDICATOR FOR
 BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD
 INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION
 INDICATOR (IFNHKP).

<> <> <> <>

JDEBUG=77 1000 TS SYSDATA &&DEBUGR7

FORMAT : T(1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, PERTURBING
 ',A4,'P'//
 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L',
 T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
 T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES
 (NMFUEL (KLAS(ILAST))) IN ALL RELEVANT SECTORS
 ((NMSEC (ISEC,M), M-1,3)).

<> <> <> <>

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
JDEBUG=77	1001	TS	SYS DATA	88DEBUGR7

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'//
1 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',
T42,'TQ-L',
T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT-BASE CASE
(NMSEC(ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=77	1002	TS	SYS DATA	88DEBUGR7
-----------	------	----	----------	-----------

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES
NYRR(NT),TQHATT,
AT1(ISEC),TPP,BT(ISEC),TQHATT,LT(ISEC), {XT(IX,NT),
PARMT(ISEC,IX),IX=1,NXT).

<> <> <> <>

JDEBUG=77	1003	TS	SYS DATA	88DEBUGR7
-----------	------	----	----------	-----------

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
'FUEL REPORT, PERTURBING ',A4,'P'//
T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA',
T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME',
T85,'GSSHR',T97,'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR:
NMFUEL(KK) AND NMFUEL(KLAS(ILAS)).

<> <> <> <>

JDEBUG=77	1004	TS	SYS DATA	88DEBUGR7
-----------	------	----	----------	-----------

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
'FUEL REPORT, BASE CASE'//
T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA'
,T40,'Q/TQ-L',
T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,
'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NMFUEL(KK).

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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<> <> <> <>

JDEBUG=77	1005	TS	SYSDATA	&&DEBUGR7
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FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,
4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
(NYRR(NT),TQHATT,AT1(ISEC),
TPP,BT(ISEC),TQHATL,LT(ISEC),(XT(IX,NT),
PARMT(ISEC,IX),IX=1,NXT)

<> <> <> <>

JDEBUG=77	1006	TS	SYSDATA	&&DEBUGR7
-----------	------	----	---------	-----------

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, PERTURBING
,A4,'P'//6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
NMFUEL(KLAS(ILAS)NMFUEL(KSEC(K)), K=1,NK).

<> <> <> <>

JDEBUG=77	1007	TS	SYSDATA	&&DEBUGR7
-----------	------	----	---------	-----------

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NMFUEL(KSEC(K)),
K=1,NK).

<> <> <> <>

JDEBUG=77	1008	TS	SYSDATA	&&DEBUGR7
-----------	------	----	---------	-----------

FORMAT : (/1X,I4,1X,6(F8.4,F8.2))

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
NXRR(NT),(NK(K,NT), PRC(KSEC(K),NT),K=1,NK).

<> <> <> <>

JDEBUG=78	9910	TS	SYSDATA	&&DEBUGR8
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
,2A4,', TIME = ',A2,':',A2//1X,' BENCH YEAR =

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDPOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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',I2/1X,'PRICE PATH METHOD = ',
'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X, 'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

```

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA (IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR (IFSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION INDICATOR (IFNHKP).

<> <> <> <>

JDEBUG=78 1000 TS SYSDATA &&DEBUGR8

```

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
SECTOR'// 1X,'TOTAL MAJORS INFORMATION, PERTURBING
',A4,'P'// 1
T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L',
T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
T107,'HDD',T121,'CDD'//)

```

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES (NMFUEL (KLAS(ILAST))) IN ALL RELEVANT SECTORS ((NMSEC(ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=78 1001 TS SYSDATA &&DEBUGR8

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FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'//
1 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',
T42,'TQ-L',
T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89, 'POP(VA)',
T107,'HDD',T121,'CDD'//)

```

DESCRIPTION: CONTAINS DEBUGGING REPORT-BASE CASE (NMSEC(ISEC,M), M=1,3)).

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
<> <> <> <>				
JDEBUG=78	1002	TS	SYSDATA	88DEBUGR8
FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,4F7.3,F7.0,5F7.3)				
DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES NYRR(NT),TQHATT, AT1(ISEC),TPP,BT(ISEC),TQHATT,LT(ISEC), (XT(IX,NT), PARMT(ISEC,IX),IX=1,NXT) .				
<> <> <> <>				
JDEBUG=78	1003	TS	SYSDATA	88DEBUGR8
FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X, 'FUEL REPORT, PERTURBING ',A4,'P'//1 T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA', T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,'POP(VA)',T115,'HDD',T129,'CDD'//)				
DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR: NMFUEL(KK) AND NMFUEL(KLAS(ILAS)) .				
<> <> <> <>				
JDEBUG=78	1004	TS	SYSDATA	88DEBUGR8
FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X, 'FUEL REPORT, BASE CASE'// T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA' ',T40,'Q/TQ-L', T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97, 'POP(VA)',T115,'HDD',T129,'CDD'//)				
DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NMFUEL(KK).				
<> <> <> <>				
JDEBUG=78	1005	TS	SYSDATA	88DEBUGR1
FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3, 4F7.3,F7.0,5F7.3)				
DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NYRR(NT),TQHATT,AT1(ISEC), TPP,BT(ISEC),TQHATL,LT(ISEC), (XT(IX,NT), PARMT(ISEC,IX),IX=1,NXT)				

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

<> <> <> <>

JDEBUG=78 1006 TS SYSDATA &&DEBUGR8

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, PERTURBING
 ',A4,'P'// 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
 NMFUEL(KLAS(ILAS) NMFUEL(KSEC(K)), K=1,NK).

<> <> <> <>

JDEBUG=78 1007 TS SYSDATA &&DEBUGR8

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NMFUEL(KSEC(K)),
 K=1,NK).

<> <> <> <>

JDEBUG=78 1008 TS SYSDATA &&DEBUGR8

FORMAT : (/1X,I4,1X,6(F8.4,F8.2))

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
 NXRR(NT), (NK(K,NT), PRC(KSEC(K),NT), K=1,NK).

<> <> <> <>

JDEBUG=79 9910 TS SYSDATA &&DEBUGR9

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,' TIME = ',A2,' : ',A2//1X,'BENCH YEAR =
 ',12/1X,'PRICE PATH METHOD = ',
 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,' WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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{IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 {IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY {IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION {IFELAS), SIC CONTROL INDICATOR
 {IFPIC), PARAMETERS {IPARM), INDICATOR FOR
 BENCHMARKING METHOD {IBMETH), FUEL INDEXING METHOD
 INDICATOR {IDMETH), AND GAS REGULATION NORMALIZATION
 INDICATOR {IFNHKP).

<> <> <> <>

JDEBUG=79	1000	TS	SYSDATA	E&DEBUGR9
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FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, PERTURBING
 ',A4,'P'// 1
 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L',
 T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
 T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES
 {NMFUEL (KLAS(ILAST))) IN ALL RELEVANT SECTORS
 ((NMSEC(ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=79	1001	TS	SYSDATA	E&DEBUGR9
-----------	------	----	---------	-----------

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'//
 1 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',
 T42,'TQ-L',
 T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89, 'POP(VA)',
 T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT-BASE CASE
 {NMSEC(ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=79	1002	TS	SYSDATA	E&DEBUGR9
-----------	------	----	---------	-----------

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES
 NYRR(NT),TQHATT,
 AT1(ISEC),TPP,BT(ISEC),TQHATT,LT(ISEC), {XT(IX,NT),
 PARMT(ISEC,IX),IX=1,NXT).

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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<> <> <> <>

JDEBUG=79	1003	TS	SYSDATA	E&DEBUGR9
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FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
 'FUEL REPORT, PERTURBING ',A4,'P'// 1
 T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA',
 T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME',
 T85,'GSSHR',T97,'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR:
 NMFUEL(KK) AND NMFUEL(KLAS(ILAS)).

<> <> <> <>

JDEBUG=79	1004	TS	SYSDATA	E&DEBUGR9
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FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
 'FUEL REPORT, BASE CASE'//
 T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA
 ',T40,'Q/TQ-L',
 T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,
 'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NMFUEL(KK).

<> <> <> <>

JDEBUG=79	1005	TS	SYSDATA	E&DEBUGR9
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FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,
 4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
 (NYRR(NT),TQHATT,AT1(ISEC),
 TPP,BT(ISEC),TQHATL,LT(ISEC),(XT(IX,NT),
 PARMT(ISEC,IX),IX=1,NXT)

<> <> <> <>

JDEBUG=79	1006	TS	SYSDATA	E&DEBUGR9
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FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, PERTURBING
 ',A4,'P'// 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
 NMFUEL(KLAS(ILAS) NMFUEL(KSEC(K)), K=1,NK).

<> <> <> <>

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
JDEBUG=79	1007	TS	SYSDATA	&&DEBUGR9

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NMFUEL(KSEC(K)),
K=1,NK).

<> <> <> <>

JDEBUG=79	1008	TS	SYSDATA	&&DEBUGR9
-----------	------	----	---------	-----------

FORMAT : (/1X,I4,1X,6(F8.4,F8.2))

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
NXRR(NT), (NK(K,NT), PRC(KSEC(K),NT), K=1,NK).

<> <> <> <>

JDEBUG=80	9910	TS	SYSDATA	&&DEBUGR0
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FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
' ,2A4,' TIME = ',A2,' : ',A2//1X,' BENCH YEAR =
' ,I2/1X,' PRICE PATH METHOD = ',
' DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X, 'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,L1/1X,' TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,' FUEL INTERCEPT METHODS -
' ,30I2/1X,' FUEL INDEXING ', 'METHODS - ',30I2/1X,' GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN-NUMBER OF
REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
RUN (NDATE), TIME OF RUN (TIME), LAST DATA YEAR
(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
(IPMETH), INDICATOR FOR METHOD TO BE USED IN
CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
(IFSIC), PARAMETERS (IPARM), INDICATOR FOR
BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD
INDICATOR (IDMETH), AND GAS REGULATION NORMALIZATION
INDICATOR (IFNHKP).

<> <> <> <>

JDEBUG=80	1000	TS	SYSDATA	&&DEBUGR0
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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

FORMAT : T{1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, PERTURBING
 ',A4,'P'// 1
 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',T42,'TQ-L',
 T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
 T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT ABOUT ALL FUEL NAMES
 (NMFUEL (KLAS(ILAST))) IN ALL RELEVANT SECTORS
 ((NMSEC (ISEC,M), M-1,3)).

<> <> <> <>

JDEBUG=80 1001 TS SYSDATA &&DEBUGRO

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',3A4,'
 SECTOR'// 1X,'TOTAL MAJORS INFORMATION, BASE CASE'//
 1 T9,'TQNDX',T19,'INT',T25,'TPNDX',T34,'BETA',
 T42,'TQ-L',
 T48,'LAMBDA',T62,'INCOME',T77,'GSSHR',T89,'POP(VA)',
 T107,'HDD',T121,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT-BASE CASE
 (NMSEC (ISEC,M), M=1,3)).

<> <> <> <>

JDEBUG=80 1002 TS SYSDATA &&DEBUGRO

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR VARIABLES
 NYRR(NT),TQHATT,
 AT1(ISEC),TPP,BT(ISEC),TOHATT,LT(ISEC), (XT(IX,NT),
 PARMT(ISEC,IX),IX=1,NXT).

<> <> <> <>

JDEBUG=80 1003 TS SYSDATA &&DEBUGRO

FORMAT : {1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
 'FUEL REPORT, PERTURBING ',A4,'P'// 1
 T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA',
 T40,'Q/TQ-L',T48,'LAMBDA',T57,'TQHAT',T70,'INCOME',
 T85,'GSSHR',T97,'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS MAJOR FUELS DEBUG REPORT FOR:
 NMFUEL(KK) AND NMFUEL(KLAS(ILAS)).

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

<> <> <> <>

JDEBUG=80 1004 TS SYSDATA &&DEBUGR0

FORMAT : (1H1,'MAJOR FUEL DEBUG REPORT - ',A4//1X,
 'FUEL REPORT, BASE CASE'//
 T11,'QTY',T19,'INT',T26,'P/TP',T34,'BETA
 ',T40,'Q/TQ-L',
 T48,'LAMBDA',T57,'TQHAT',T70,'INCOME', T85,'GSSHR',T97,
 'POP(VA)',T115,'HDD',T129,'CDD'//)

DESCRIPTION: CONTAINS DEBUGGING REPORT FOR: NMFUEL(KK).

<> <> <> <>

JDEBUG=80 1005 TS SYSDATA &&DEBUGR9

FORMAT : (/1X,I4,F8.1,3F8.3,F8.5,F8.3,
 4F7.3,F7.0,5F7.3)

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
 (NYRR(NT),TQHATT,AT1(ISEC),
 TPP,BT(ISEC),TQHATL,LT(ISEC),{XT(IX,NT)},
 PARMT(ISEC,IX),IX=1,NXT)

<> <> <> <>

JDEBUG=80 1006 TS SYSDATA &&DEBUGR0

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, PERTURBING
 ',A4,'P'// 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR:
 NMFUEL(KLAS(ILAS)NMFUEL(KSEC(K)), K=1,NK).

<> <> <> <>

JDEBUG=80 1007 TS SYSDATA &&DEBUGR0

FORMAT : (1H1,'VALUE WEIGHTS AND PRICES, BASE CASE '//
 6X,6(6X,A4,6X))

DESCRIPTION: CONTAINS DEBUG REPORT FOR: (NMFUEL(KSEC(K)),
 K=1,NK).

<> <> <> <>

JDEBUG=80 1008 TS SYSDATA &&DEBUGR0

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

FORMAT : (/1X,I4,1X,6(F8.4,F8.2))

DESCRIPTION: CONTAINS DEBUG REPORT FOR VARIABLES:
 NXRR(NT), (NK(K,NT), PRC(KSEC(K),NT), K=1,NK).

<> <> <> <>

JTRDBG=86 1001 TS SYSDATA &&TRDBG1

FORMAT : (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
 2F10.0,F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
 FOR VARIABLES: NYRR(NT), GAS(NT), VM(NT), AMPG(NT),
 MPG(NT), NPCR(NT), PCR(NT),
 COST(NT), PGAS(NT), YP58(NT), NPOP(NT), POP(NT) AND
 QTY(15,NT).

<> <> <> <>

JTRDBG=86 1002 TS SYSDATA &&TRDBG1

FORMAT : (1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
 4X,'AMPGBS', 4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
 'PMAIR',5X,'FPJTC'//)

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
 MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=86 1003 TS SYSDATA &&TRDBG1

FORMAT : (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
 2F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
 FOR VARIABLES:
 NYRR(NT), VMTRK(NT), VMBUS(NT), AMPGTR(NT), AMPGBS(NT),
 TRBSGS(NT), TRBSDF(NT), TPJFT(NT), PMAIR(NT) AND
 FPJTC(NT).

<> <> <> <>

JTRDBG=86 9910 TS SYSDATA &&TRDBG1

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDBFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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	',2A4,', TIME = ',A2,':',A2//1X,' BENCH YEAR = ',I2/1X,' PRICE PATH METHOD = ', 'DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,' WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,' TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,' FUEL INTERCEPT METHODS - ',30I2/1X,' FUEL INDEXING ', 'METHODS - ',30I2/1X,' GAS REG NORMALIZATIONS - ',14I2)			
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DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF
 REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF
 RUN(NDATE), TIME OF RUN(TIME), LAST DATA
 YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION
 FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION(IFELAS), SIC CONTROL INDICATOR
 IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING
 METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH)
 AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JTRDBG=86	1000	TS	SYSDATA	&&TRDBG1
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FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG',
 6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X
 'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL
 UNSHARED VALUES

<> <> <> <>

JTRDB6=86	1004	TS	SYSDATA	&&TRDBG1
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FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,
 'FPRFT',6X,'TRFL',6X,'BSFL',4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL
 UNSHARED VALUES.

<> <> <> <>

JTRDBG=86	1005	TS	SYSDATA	&&TRDBG1
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FORMAT : (1X,I4,1X,6F10.2/)

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), RLDF(NT), FPLGT(NT), FPRFT(NT),
TRFL(NT), BSFL(NT) AND NHWYGS(NT).

<> <> <> <>

JTRDBG=87 1001 TS SYSDATA &ETRDBGR2

FORMAT : (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
 2F10.0,F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), GAS(NT), VM(NT), AMPG(NT),
MPG(NT), NPCR(NT), PCR(NT),
COST(NT), PGAS(NT), YP58(NT), NPOP(NT), POP(NT) AND
QTY(15,NT).

<> <> <> <>

JTRDBG=87 1002 TS SYSDATA &ETRDBGR2

FORMAT : (1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
 4X,'AMPGBS', 4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
 'PMAIR',5X,'FPJTC'//)

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=87 1003 TS SYSDATA &ETRDBGR2

FORMAT : (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
 2F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES:
NYRR(NT), VMTRK(NT), VMBUS(NT), AMPGTR(NT), AMPGBS(NT),
TRBSGS(NT), TRBSDF(NT), TPJFT(NT), PMAIR(NT) AND
FPJTC(NT).

<> <> <> <>

JTRDBG=87 9910 TS SYSDATA &ETRDBGR2

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,', TIME = ',A2,':',A2//1X,'BENCH YEAR =

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

' ,I2/1X,'PRICE PATH METHOD = ',
'DONE - (ZERO
MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD
& AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF
REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF
RUN(NDATE), TIME OF RUN(TIME), LAST DATA
YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION
FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN
CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO
ELASTICITY PERTURBATION(IPELAS), SIC CONTROL INDICATOR
IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING
METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH)
AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JTRDBG=87 1000 TS SYSDATA &&TRDBG2

FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG'
,6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X
, 'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL
UNSHARED VALUES

<> <> <> <>

JTRDB6=87 1004 TS SYSDATA &&TRDBG2

FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,
'FPRFT',6X,'TRFL',6X,'BSFL', 4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL
UNSHARED VALUES.

<> <> <> <>

JTRDBG=87 1005 TS SYSDATA &&TRDBG2

FORMAT : (1X,I4,1X,6F10.2/)

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT),RLDF(NT),FPLGT(NT),FPRFT(NT),
TRFL(NT),BSFL(NT) AND NHWYGS(NT).

<> <> <> <>

JTRDBG=88	1001	TS	SYSDATA	&&TRDBG3
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FORMAT : (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
2F10.0,F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT),GAS(NT),VM(NT),AMPG(NT),
MPG(NT),NPCR(NT),PCR(NT),
COST(NT),PGAS(NT),YP58(NT),NPOP(NT),POP(NT) AND
QTY(15,NT).

<> <> <> <>

JTRDBG=88	1002	TS	SYSDATA	&&TRDBG3
-----------	------	----	---------	----------

FORMAT : (1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
4X,'AMPGBS',4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
'PMAIR',5X,'FPJTC'//)

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=88	1003	TS	SYSDATA	&&TRDBG3
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FORMAT : (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
2F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES:
NYRR(NT),VMTRK(NT),VMBUS(NT),AMPGTR(NT),AMPGBS(NT),
TRBSGS(NT),TRBSDF(NT),TPJFT(NT),PMAIR(NT) AND
FPJTC(NT).

<> <> <> <>

JTRDBG=88	9910	TS	SYSDATA	&&TRDBG3
-----------	------	----	---------	----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
,2A4,', TIME = ',A2,';',A2//1X,'BENCH YEAR =

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

' ,I2/1X,'PRICE PATH METHOD = ',
'DONE - (ZERO
MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD
& AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF
REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF
RUN(NDATE), TIME OF RUN(TIME), LAST DATA
YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION
FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN
CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO
ELASTICITY PERTURBATION(IFELAS), SIC CONTROL INDICATOR
IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING
METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH)
AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JTRDBG=88 1000 TS SYSDATA &STRDBGR3

FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG'
,6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X
, 'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL
UNSHARED VALUES

<> <> <> <>

JTRDB6=88 1004 TS SYSDATA &STRDBGR3

FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,
'FPRFT',6X,'TRFL',6X,'BSFL',4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL
UNSHARED VALUES.

<> <> <> <>

JTRDBG=88 1005 TS SYSDATA &STRDBGR3

FORMAT : (1X,I4,1X,6F10.2/)

TABLE V.3: COMPLETE SPECIFICATIONS OF RDBFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), RLDF(NT), FPLGT(NT), FPRFT(NT),
TRFL(NT), BSFL(NT) AND NHWYGS(NT).

<> <> <> <>

JTRDBG=89	1001	TS	SYSDATA	E&TRDBG4
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FORMAT : (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
2F10.0,F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), GAS(NT), VM(NT), AMPG(NT),
MPG(NT), NPCR(NT), PCR(NT),
COST(NT), PGAS(NT), YP58(NT), NPOP(NT), POP(NT) AND
QTY(15,NT).

<> <> <> <>

JTRDBG=89	1002	TS	SYSDATA	E&TRDBG4
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FORMAT : (1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
4X,'AMPGBS', 4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
'PMAIR',5X,'FPJTC'//)

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=89	1003	TS	SYSDATA	E&TRDBG4
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FORMAT : (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
2F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES:
NYRR(NT), VMTRK(NT), VMBUS(NT), AMPGTR(NT), AMPGBS(NT),
TRBSGS(NT), TRBSDF(NT), TPJFT(NT), PMAIR(NT) AND
FPJTC(NT).

<> <> <> <>

JTRDBG=89	9910	TS	SYSDATA	E&TRDBG4
-----------	------	----	---------	----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
' ,2A4,' , TIME = ',A2,' : ',A2//1X,' BENCH YEAR =

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

	' ,I2/1X,'PRICE PATH METHOD = '			
	'DONE - (ZERO			
	MEANS PERTURBATION WAS SKIPPED) - ' ,10I2/1X,'WAS			
	INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -			
	' ,L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR			
	LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD			
	& AIR LOAD FACTOR) - ' ,2I2/1X,'FUEL INTERCEPT METHODS -			
	' ,30I2/1X,'FUEL INDEXING ' ,METHODS - ' ,30I2/1X,'GAS			
	REG NORMALIZATIONS - ' ,14I2)			

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF RUN(NDATE), TIME OF RUN(TIME), LAST DATA YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA (IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION(IFELAS), SIC CONTROL INDICATOR (IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR (IFNHKP).

<> <> <> <>

JTRDBG=89	1000	TS	SYS DATA	88TRDBGR4
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FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG',6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X,'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES

<> <> <> <>

JTRDB6=89	1004	TS	SYS DATA	88TRDBGR4
-----------	------	----	----------	-----------

FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,'FPRFT',6X,'TRFL',6X,'BSFL',4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES.

<> <> <> <>

JTRDBG=89	1005	TS	SYS DATA	88TRDBGR4
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FORMAT : (1X,I4,1X,6F10.2/)

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), RLDF(NT), FPLGT(NT), FPRFT(NT),
TRFL(NT), BSFL(NT) AND NHWYGS(NT).

<> <> <> <>

JTRDBG=90 1001 TS SYSDATA &&TRDBG5

FORMAT : (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
2F10.0,F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), GAS(NT), VM(NT), AMPG(NT),
MPG(NT), NPCR(NT), PCR(NT),
COST(NT), PGAS(NT), YP58(NT), NPOP(NT), POP(NT) AND
QTY(15,NT).

<> <> <> <>

JTRDBG=90 1002 TS SYSDATA &&TRDBG5

FORMAT : (1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
4X,'AMPGBS', 4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
'PMAIR',5X,'FPJTC'//)

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=90 1003 TS SYSDATA &&TRDBG5

FORMAT : (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
2F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES:
NYRR(NT), VMTRK(NT), VMBUS(NT), AMPGTR(NT), AMPGBS(NT),
TRBSGS(NT), TRBSDF(NT), TPJFT(NT), PMAIR(NT) AND
FPJTC(NT).

<> <> <> <>

JTRDBG=90 9910 TS SYSDATA &&TRDBG5

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
',2A4,', TIME = ',A2,':',A2//1X,'BENCH YEAR =

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TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
	',I2/1X,'PRICE PATH METHOD = ', 'DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS - ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS REG NORMALIZATIONS - ',14I2)			

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF RUN(NDATE), TIME OF RUN(TIME), LAST DATA YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION(IFELAS), SIC CONTROL INDICATOR IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JTRDBG=90 1000 TS SYSDATA &ETRDBGR5

FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG',6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X,'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES

<> <> <> <>

JTRDB6=90 1004 TS SYSDATA &ETRDBGR5

FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,'FPRFT',6X,'TRFL',6X,'BSFL',4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES.

<> <> <> <>

JTRDBG=90 1005 TS SYSDATA &ETRDBGR5

FORMAT : (1X,I4,1X,6F10.2/)

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), RLDF(NT), FPLGT(NT), FPRPT(NT),
TRFL(NT), BSFL(NT) AND NHWYGS(NT).

<> <> <> <>

JTRDBG=91 1001 TS SYSDATA &ETRDBGR6

FORMAT : {1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
 2F10.0,F10.2/}

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), GAS(NT), VM(NT), AMPG(NT),
MPG(NT), NPCR(NT), PCR(NT),
COST(NT), PGAS(NT), YP58(NT), NPOP(NT), POP(NT) AND
QTY(15,NT).

<> <> <> <>

JTRDBG=91 1002 TS SYSDATA &ETRDBGR6

FORMAT : {1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
 4X,'AMPGBS', 4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
 'PMAIR',5X,'FPJTC'//}

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=91 1003 TS SYSDATA &ETRDBGR6

FORMAT : {1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
 2F10.2/}

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES:
NYRR(NT), VMTRK(NT), VMBUS(NT), AMPGTR(NT), AMPGBS(NT),
TRBSGS(NT), TRBSDF(NT), TPJFT(NT), PMAIR(NT) AND
FPJTC(NT).

<> <> <> <>

JTRDBG=91 9910 TS SYSDATA &ETRDBGR6

FORMAT : {1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,', TIME = ',A2,':',A2//1X,'BENCH YEAR =

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TABLE V.3: COMPLETE SPECIFICATIONS OF RDPOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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	',I2/1X,'PRICE PATH METHOD = ',			
	'DONE - (ZERO			
	MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS			
	INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -			
	',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR			
	LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD			
	& AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -			
	',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS			
	REG NORMALIZATIONS - ',14I2)			

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF RUN(NDATE), TIME OF RUN(TIME), LAST DATA YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION(IPELAS), SIC CONTROL INDICATOR (IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JTRDBG=91	1000	TS	SYSDATA	&&TRDBG6
-----------	------	----	---------	----------

FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG',6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X,'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES

<> <> <> <>

JTRDB6-91	1004	TS	SYSDATA	&&TRDBG6
-----------	------	----	---------	----------

FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,'FPRFT',6X,'TRFL',6X,'BSFL',4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES.

<> <> <> <>

JTRDBG=91	1005	TS	SYSDATA	&&TRDBG6
-----------	------	----	---------	----------

FORMAT : (1X,I4,1X,6F10.2/)

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), RLDF(NT), FPLGT(NT), FPRFT(NT),
TRFL(NT), BSFL(NT) AND NHWYGS(NT).

<> <> <> <>

JTRDBG=92	1001	TS	SYSDATA	E&TRDBG7
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FORMAT : (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
2F10.0,F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), GAS(NT), VM(NT), AMPG(NT),
MPG(NT), NPCR(NT), PCR(NT),
COST(NT), PGAS(NT), YP58(NT), NPOP(NT), POP(NT) AND
QTY(15,NT).

<> <> <> <>

JTRDBG=92	1002	TS	SYSDATA	E&TRDBG7
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FORMAT : (1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
4X,'AMPGBS', 4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
'PMAIR',5X,'FPJTC'//)

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=92	1003	TS	SYSDATA	E&TRDBG7
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FORMAT : (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
2F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES:
NYRR(NT), VMTRK(NT), VMBUS(NT), AMPGTR(NT), AMPGBS(NT),
TRBSGS(NT), TRBSDF(NT), TPJFT(NT), PMAIR(NT) AND
FPJTC(NT).

<> <> <> <>

JTRDBG=92	9910	TS	SYSDATA	E&TRDBG7
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FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
' ,2A4,' , TIME = ',A2,' : ',A2//1X,' BENCH YEAR =

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TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
	',I2/1X,'PRICE PATH METHOD = ', 'DONE - {ZERO MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,'TRANS MODEL PARAMETERS - {AUTO MPG STD & AIR LOAD FACTOR) - 'TRANS MODEL PARAMETERS - {AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS - ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS REG NORMALIZATIONS - ',14I2)			

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF RUN(NDATE), TIME OF RUN(TIME), LAST DATA YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION(IFELAS), SIC CONTROL INDICATOR (IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JTRDBG=92 1000 TS SYSDATA &ETRDBGR7

FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG',
 ,6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X
 , 'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES

<> <> <> <>

JTRDB6=92 1004 TS SYSDATA &ETRDBGR7

FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,
 'FPRFT',6X,'TRFL',6X,'BSFL', 4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES.

<> <> <> <>

JTRDBG=92 1005 TS SYSDATA &ETRDBGR7

FORMAT : (1X,I4,1X,6F10.2/)

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), RLDF(NT), FPLGT(NT), FPRFT(NT),
TRFL(NT), BSFL(NT) AND NHWYGS(NT).

<> <> <> <>

JTRDBG=93 1001 TS SYSDATA &&TRDBG8

FORMAT : (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
 2F10.0,F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR(NT), GAS(NT), VM(NT), AMPG(NT),
MPG(NT), NPCR(NT), PCR(NT),
COST(NT), PGAS(NT), YP58(NT), NPOP(NT), POP(NT) AND
QTY(15,NT).

<> <> <> <>

JTRDBG=93 1002 TS SYSDATA &&TRDBG8

FORMAT : (1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
 4X,'AMPGBS', 4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
 'PMAIR',5X,'FPJTC'//)

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=93 1003 TS SYSDATA &&TRDBG8

FORMAT : (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
 2F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES:
NYRR(NT), VMTRK(NT), VMBUS(NT), AMPGTR(NT), AMPGBS(NT),
TRBSGS(NT), TRBSDF(NT), TPJFT(NT), PMAIR(NT) AND
FPJTC(NT).

<> <> <> <>

JTRDBG=93 9910 TS SYSDATA &&TRDBG8

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,', TIME = ',A2,':',A2//1X,' BENCH YEAR =

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TABLE V.3: COMPLETE SPECIFICATIONS OF RDBFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
	',I2/1X,'PRICE PATH METHOD = ', 'DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS - ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS REG NORMALIZATIONS - ',14I2)			

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF RUN(NDATE), TIME OF RUN(TIME), LAST DATA YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION(IFELAS), SIC CONTROL INDICATOR IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JTRDBG=93 1000 TS SYSDATA &ETRDBGR8

FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG',
 ,6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X
 , 'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES

<> <> <> <>

JTRDB6=93 1004 TS SYSDATA &ETRDBGR8

FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,
 'FPRFT',6X,'TRFL',6X,'BSPL',4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES.

<> <> <> <>

JTRDBG=93 1005 TS SYSDATA &ETRDBGR8

FORMAT : (1X,I4,1X,6F10.2/)

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR (NT), RLDF (NT), FPLGT (NT), FPRFT (NT),
TRFL (NT), BSFL (NT) AND NHWYGS (NT).

<> <> <> <>

JTRDBG=94	1001	TS	SYS DATA	88TRDBG9
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FORMAT : (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
2F10.0,F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR (NT), GAS (NT), VM (NT), AMPG (NT),
MPG (NT), NPCR (NT), PCR (NT),
COST (NT), PGAS (NT), YP58 (NT), NPOP (NT), POP (NT) AND
QTY (15, NT).

<> <> <> <>

JTRDBG=94	1002	TS	SYS DATA	88TRDBG9
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FORMAT : (1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
4X,'AMPGBS',4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
'PMAIR',5X,'FPJTC'//)

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=94	1003	TS	SYS DATA	88TRDBG9
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FORMAT : (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
2F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES:
NYRR (NT), VMTRK (NT), VMBUS (NT), AMPGTR (NT), AMPGBS (NT),
TRBSGS (NT), TRBSDF (NT), TPJFT (NT), PMAIR (NT) AND
FPJTC (NT).

<> <> <> <>

JTRDBG=94	9910	TS	SYS DATA	88TRDBG9
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FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
,2A4,', TIME = ',A2,':',A2//1X,'BENCH YEAR =

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TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
	',I2/1X,'PRICE PATH METHOD = ', 'DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS - ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS REG NORMALIZATIONS - ',14I2)			

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF RUN(NDATE), TIME OF RUN(TIME), LAST DATA YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION(IFELAS), SIC CONTROL INDICATOR (IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JTRDBG=94	1000	TS	SYS DATA	88TRDBG9
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FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG',6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X,'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES

<> <> <> <>

JTRDB6=94	1004	TS	SYS DATA	88TRDBG9
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FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,'FPRFT',6X,'TRFL',6X,'BSFL',4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL UNSHARED VALUES.

<> <> <> <>

JTRDBG=94	1005	TS	SYS DATA	88TRDBG9
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FORMAT : (1X,I4,1X,6F10.2//)

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR (NT) ,RLDF (NT) ,FPLGT (NT) ,FPRFT (NT) ,
TRFL (NT) ,BSFL (NT) AND NHWYGS (NT) .

<> <> <> <>

JTRDBG=95 1001 TS SYSDATA &&TRDBGRO

FORMAT : (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,
 2F10.0,F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR (NT) ,GAS (NT) ,VM (NT) ,AMPG (NT) ,
MPG (NT) ,NPCR (NT) ,PCR (NT) ,
COST (NT) ,PGAS (NT) ,YP58 (NT) ,NPOP (NT) ,POP (NT) AND
QTY (15,NT) .

<> <> <> <>

JTRDBG=95 1002 TS SYSDATA &&TRDBGRO

FORMAT : (1H1,10X,'VMTRK',5X,'VMBUS',4X,'AMPGTR',
 4X,'AMPGBS',4X,'TRBSGS',4X,'TRBSDF',5X,'TPJFT',5X,
 'PMAIR',5X,'FPJTC'//)

DESCRIPTION: CONTAINS HEADER INFORMATION FOR TRANSPORTATION
MODEL UNSHARED VALUES

<> <> <> <>

JTRDBG=95 1003 TS SYSDATA &&TRDBGRO

FORMAT : (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,
 2F10.2/)

DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES:
NYRR (NT) ,VMTRK (NT) ,VMBUS (NT) ,AMPGTR (NT) , AMPGBS (NT) ,
TRBSGS (NT) ,TRBSDF (NT) , TPJFT (NT) ,PMAIR (NT) AND
FPJTC (NT) .

<> <> <> <>

JTRDBG=95 9910 TS SYSDATA &&TRDBGRO

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,', TIME = ',A2,':',A2//1X,' BENCH YEAR =

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TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
	',I2/1X,'PRICE PATH METHOD = ', 'DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS - ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS REG NORMALIZATIONS - ',14I2)			

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF
 REGIONS(NMREG), RUN IDENTIFICATION(IDRUN),DATE OF
 RUN(NDATE),TIME OF RUN(TIME),LAST DATA
 YEAR(IYBNCH),INDICATOR FOR PRICE PERTURBATION
 FORMULA(IPMETH),INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY(IEMETH),INDICATOR TO DO
 ELASTICITY PERTURBATION(IPELAS),SIC CONTROL INDICATOR
 IFSIC),PARAMETERS(IPARM),INDICATOR FOR BENCHMARKING
 METHOD(IBMETH),FUEL INDEXING METHOD INDICATOR(IDMETH)
 AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JTRDBG=95 1000 TS SYSDATA &&TRDBGRO

FORMAT : (1H1,12X,'GAS',8X,'VM',6X,'AMPG',7X,'MPG'
 ,6X,'NPCR',7X,'PCR',6X,'COST',6X,'PGAS',5X,'YP58N',6X
 ,'NPOP',3X,'REG POP',4X,'QTY-15'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL
 UNSHARED VALUES

<> <> <> <>

JTRDB6=95 1004 TS SYSDATA &&TRDBGRO

FORMAT : (1H1,11X,'RLDF',5X,'FPLGT',5X,
 'FPRFT',6X,'TRFL',6X,'BSFL',4X,'NHWYGS'//)

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION MODEL
 UNSHARED VALUES.

<> <> <> <>

JTRDBG=95 1005 TS SYSDATA &&TRDBGRO

FORMAT : (1X,I4,1X,6F10.2/)

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS TRANSPORTATION MODEL UNSHARED VALUES
FOR VARIABLES: NYRR (NT), RLDF (NT), FPLGT (NT), FPRFT (NT),
TRFL (NT), BSFL (NT) AND NHWYGS (NT).

<> <> <> <>

JPROTY=41	9910	TS	SYSDATA	E&PROTYR1
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
,2A4,', TIME = ',A2,':',A2//1X,'BENCH YEAR =
,12/1X,'PRICE PATH METHOD = ',
'DONE - (ZERO
MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
,L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD
& AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
,30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF
REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
RUN (NDATE), TIME OF RUN (TIME), LAST DATA
YEAR (IYBNCH), INDICATOR FOR PRICE PERTURBATION
FORMULA (IPMETH), INDICATOR FOR METHOD TO BE USED IN
CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
IFSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING
METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH)
AND GAS REGULATION NORMALIZATION INDICATOR (IFNHKP).

<> <> <> <>

JPROTY=42	9910	TS	SYSDATA	E&PROTYR2
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
,2A4,', TIME = ',A2,':',A2//1X,'BENCH YEAR =
,12/1X,'PRICE PATH METHOD = ',
'DONE - (ZERO
MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
,L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD
& AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
,30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF
REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF
RUN(NDATE), TIME OF RUN(TIME), LAST DATA
YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION
FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN
CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO
ELASTICITY PERTURBATION(IFELAS), SIC CONTROL INDICATOR
IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING
METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH)
AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JPRQTY=43 9910 TS SYSDATA &&PRQTYR3

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
' ,2A4,' , TIME = ',A2,' : ',A2//1X,' BENCH YEAR =
' ,I2/1X,' PRICE PATH METHOD = ',
' DONE - (ZERO
MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,' WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,L1/1X,' TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD
& AIR LOAD FACTOR) - ',2I2/1X,' FUEL INTERCEPT METHODS -
' ,30I2/1X,' FUEL INDEXING ', 'METHODS - ',30I2/1X,' GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF
REGIONS(NMREG), RUN IDENTIFICATION(IDRUN), DATE OF
RUN(NDATE), TIME OF RUN(TIME), LAST DATA
YEAR(IYBNCH), INDICATOR FOR PRICE PERTURBATION
FORMULA(IPMETH), INDICATOR FOR METHOD TO BE USED IN
CALCULATING ELASTICITY(IEMETH), INDICATOR TO DO
ELASTICITY PERTURBATION(IFELAS), SIC CONTROL INDICATOR
IFSIC), PARAMETERS(IPARM), INDICATOR FOR BENCHMARKING
METHOD(IBMETH), FUEL INDEXING METHOD INDICATOR(IDMETH)
AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

JPRQTY=44 9910 TS SYSDATA &&PRQTYR4

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
REGION ', A4//1X,'THIS IS A ',14A4,' RUN, DATE =
' ,2A4,' , TIME = ',A2,' : ',A2//1X,' BENCH YEAR =
' ,I2/1X,' PRICE PATH METHOD = ',
' DONE - (ZERO

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
	MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - 'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS - ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS REG NORMALIZATIONS - ',14I2)			

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN - NUMBER OF
 REGIONS(NMREG), RUN IDENTIFICATION(IDRUN),DATE OF
 RUN(NDATE),TIME OF RUN(TIME),LAST DATA
 YEAR(IYBNCH),INDICATOR FOR PRICE PERTURBATION
 FORMULA(IPMETH),INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY(IEMETH),INDICATOR TO DO
 ELASTICITY PERTURBATION(IFELAS),SIC CONTROL INDICATOR
 IFSIC),PARAMETERS(IPARM),INDICATOR FOR BENCHMARKING
 METHOD(IBMETH),FUEL INDEXING METHOD INDICATOR(IDMETH)
 AND GAS REGULATION NORMALIZATION INDICATOR(IFNHKP).

<> <> <> <>

II=41	1000	TS	SYSDATA	&&PRQTRY1
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
 ', PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
 BTUS PER YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
 (NMFUEL(KLAS(ILAS))) IN ALL RELEVANT REGIONS(NMREG).

<> <> <> <>

II=41	1001	TS	SYSDATA	&&PRQTYR1
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
 ', BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
 YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
 (NMREG).

<> <> <> <>

II=41	1002	TS	SYSDATA	&&PRQTYR1
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
 (NYR(NT),NT=1,9).

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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<> <> <> <>

II=41	1003	TS	SYSDATA	E&PRQTYR1
-------	------	----	---------	-----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K)
AND (QTY(K,NT),NT = 1,9).

<> <> <> <>

II=41	1004	TS	SYSDATA	E&PRQTYR1
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
(NYR(NT),NT=10,18)

<> <> <> <>

II=41	1003	TS	SYSDATA	E&PRQTYR1
-------	------	----	---------	-----------

FORMAT : (IX,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K)
AND FOR (QTY(K,NT), NT=10,18).

<> <> <> <>

II=41	1004	TS	SYSDATA	E&PRQTYR1
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR (NYR (NT),NT=1,9).

<> <> <> <>

II=41	1006	TS	SYSDATA	E&PRQTYR1
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=1,9).

<> <> <> <>

II=41	1002	TS	SYSDATA	E&PRQTYR1
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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=10,18)

<> <> <> <>

II=41	1006	TS	SYSDATA	E&PRQTYR1
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT),NT=10,18) .

<> <> <> <>

II=42	1000	TS	SYSDATA	E&PRQTRY2
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
BTUS PER YEAR'/ 1X,'PRICES' IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
(NMFUEL(KLAS(ILAS))) IN ALL RELEVANT REGIONS(NMREG) .

<> <> <> <>

II=42	1001	TS	SYSDATA	E&PRQTYR2
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
YEAR'/ 1X,'PRICES' IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
(NMREG) .

<> <> <> <>

II=42	1002	TS	SYSDATA	E&PRQTYR2
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=1,9) .

<> <> <> <>

II=42	1003	TS	SYSDATA	E&PRQTYR2
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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K)
AND (QTY(K,NT), NT = 1,9).

<> <> <> <>

II=42	1004	TS	SYSDATA	88PRQTYR2
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
(NYR(NT), NT=10,18)

<> <> <> <>

II=42	1003	TS	SYSDATA	88PRQTYR2
-------	------	----	---------	-----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K)
AND FOR (QTY(K,NT), NT=10,18).

<> <> <> <>

II=42	1004	TS	SYSDATA	88PRQTYR2
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR (NYR (NT), NT=1,9).

<> <> <> <>

II=42	1006	TS	SYSDATA	88PRQTYR2
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=1,9).

<> <> <> <>

II=42	1002	TS	SYSDATA	88PRQTYR2
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT), NT=10,18)

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

II=42	1006	TS	SYSDATA	E&PRQTYR2
-------	------	----	---------	-----------

FORMAT : {1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT),NT=10,18).

<> <> <> <>

II=43	1000	TS	SYSDATA	E&PRQTRY3
-------	------	----	---------	-----------

FORMAT : {1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
BTUS PER YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
{NMFUEL(KLAS(ILAS))) IN ALL RELEVANT REGIONS(NMREG).

<> <> <> <>

II=43	1001	TS	SYSDATA	E&PRQTYR3
-------	------	----	---------	-----------

FORMAT : {1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
(NMREG).

<> <> <> <>

II=43	1002	TS	SYSDATA	E&PRQTYR3
-------	------	----	---------	-----------

FORMAT : {6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=1,9).

<> <> <> <>

II=43	1003	TS	SYSDATA	E&PRQTYR3
-------	------	----	---------	-----------

FORMAT : {1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K)
AND (QTY(K,NT),NT = 1,9).

TABLE V.3: COMPLETE SPECIFICATIONS OF RDPOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

II=43	1004	TS	SYSDATA	E&PRQTYR3
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
(NYR(NT),NT=10,18)

<> <> <> <>

II=43	1003	TS	SYSDATA	E&PRQTYR3
-------	------	----	---------	-----------

FORMAT : (IX,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K)
AND FOR {QTY(K,NT), NT=10,18).

<> <> <> <>

II=43	1004	TS	SYSDATA	E&PRQTYR3
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR (NYR(NT),NT=1,9).

<> <> <> <>

II=43	1006	TS	SYSDATA	E&PRQTYR3
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND {PRC(I,NT), NT=1,9).

<> <> <> <>

II=43	1002	TS	SYSDATA	E&PRQTYR3
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=10,18)

<> <> <> <>

II=43	1006	TS	SYSDATA	E&PRQTYR3
-------	------	----	---------	-----------

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT),NT=10,18).

<> <> <> <>

II=44	1000	TS	SYSDATA	E&PRQTRY4
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
BTUS PER YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
(NMFUEL(KLAS(ILAS))) IN ALL RELEVANT REGIONS(NMREG).

<> <> <> <>

II=44	1001	TS	SYSDATA	E&PRQTYR4
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
(NMREG).

<> <> <> <>

II=44	1002	TS	SYSDATA	E&PRQTYR4
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=1,9).

<> <> <> <>

II=44	1003	TS	SYSDATA	E&PRQTYR4
-------	------	----	---------	-----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K)
AND (QTY(K,NT),NT = 1,9).

<> <> <> <>

II=44	1004	TS	SYSDATA	E&PRQTYR4
-------	------	----	---------	-----------

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
(NYR(NT),NT=10,18)

<> <> <> <>

II=44	1003	TS	SYSDATA	EEPRQTYR4
-------	------	----	---------	-----------

FORMAT : (IX,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K)
AND FOR (QTY(K,NT), NT=10,18).

<> <> <> <>

II=44	1004	TS	SYSDATA	EEPRQTYR4
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR (NYR(NT),NT=1,9).

<> <> <> <>

II=44	1006	TS	SYSDATA	EEPRQTYR4
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=1,9).

<> <> <> <>

II=44	1002	TS	SYSDATA	EEPRQTYR4
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=10,18)

<> <> <> <>

II=44	1006	TS	SYSDATA	EEPRQTYR4
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT),NT=10,18).

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDPOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

II=45	1000	TS	SYSDATA	E&PRQTRY5
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
BTUS PER YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
{NMFUEL{KLAS(ILAS)}) IN ALL RELEVANT REGIONS(NMREG).

<> <> <> <>

II=45	1001	TS	SYSDATA	E&PRQTYR5
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
(NMREG).

<> <> <> <>

II=45	1002	TS	SYSDATA	E&PRQTYR5
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=1,9).

<> <> <> <>

II=45	1003	TS	SYSDATA	E&PRQTYR5
-------	------	----	---------	-----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K)
AND (QTY(K,NT),NT = 1,9).

<> <> <> <>

II=45	1004	TS	SYSDATA	E&PRQTYR5
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
{NYR(NT),NT=10,18)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

II=45	1003	TS	SYSDATA	88PRQTYR5
-------	------	----	---------	-----------

FORMAT : (IX,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K)
AND FOR (QTY(K,NT), NT=10,18).

<> <> <> <>

II=45	1004	TS	SYSDATA	88PRQTYR5
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR (NYR(NT), NT=1,9).

<> <> <> <>

II=45	1006	TS	SYSDATA	88PRQTYR5
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=1,9).

<> <> <> <>

II=45	1002	TS	SYSDATA	88PRQTYR5
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT), NT=10,18)

<> <> <> <>

II=45	1006	TS	SYSDATA	88PRQTYR5
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=10,18).

<> <> <> <>

II=46	1000	TS	SYSDATA	88PRQTRY6
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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
BTUS PER YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
(NMFUEL(KLAS(ILAS))) IN ALL RELEVANT REGIONS(NMREG).

<> <> <> <>

II=46	1001	TS	SYSDATA	88PRQTYR6
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
(NMREG).

<> <> <> <>

II=46	1002	TS	SYSDATA	88PRQTYR6
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=1,9).

<> <> <> <>

II=46	1003	TS	SYSDATA	88PRQTYR6
-------	------	----	---------	-----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K)
AND (QTY(K,NT),NT = 1,9).

<> <> <> <>

II=46	1004	TS	SYSDATA	88PRQTYR6
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
(NYR(NT),NT=10,18)

<> <> <> <>

II=46	1003	TS	SYSDATA	88PRQTYR6
-------	------	----	---------	-----------

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

FORMAT : (IX,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K)
AND FOR (QTY(K,NT), NT=10,18).

<> <> <> <>

II=46	1004	TS	SYSDATA	E&PROQTYR6
-------	------	----	---------	------------

FORMAT : (1H1,5X,9(7X,I4)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR (NYR(NT), NT=1, 9).

<> <> <> <>

II=46	1006	TS	SYSDATA	E&PROQTYR6
-------	------	----	---------	------------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=1,9).

<> <> <> <>

II=46	1002	TS	SYSDATA	E&PROQTYR6
-------	------	----	---------	------------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT), NT=10,18)

<> <> <> <>

II=46	1006	TS	SYSDATA	E&PROQTYR6
-------	------	----	---------	------------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=10,18).

<> <> <> <>

II=47	1000	TS	SYSDATA	E&PROQTRY7
-------	------	----	---------	------------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
BTUS PER YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
(NMFUEL(KLAS(ILAS))) IN ALL RELEVANT REGIONS(NMREG).

<> <> <> <>

II=47	1001	TS	SYSDATA	E&PRQTYR7
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
(NMREG).

<> <> <> <>

II=47	1002	TS	SYSDATA	E&PRQTYR7
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=1,9).

<> <> <> <>

II=47	1003	TS	SYSDATA	E&PRQTYR7
-------	------	----	---------	-----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K)
AND (QTY(K,NT),NT = 1,9).

<> <> <> <>

II=47	1004	TS	SYSDATA	E&PRQTYR7
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
(NYR(NT),NT=10,18)

<> <> <> <>

II=47	1003	TS	SYSDATA	E&PRQTYR7
-------	------	----	---------	-----------

FORMAT : (IX,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K)
AND FOR (QTY(K,NT), NT=10,18).

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDPOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

II=47	1004	TS	SYSDATA	E&PRQTYR7
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR (NYR(NT),NT=1,9) .

<> <> <> <>

II=47	1006	TS	SYSDATA	E&PRQTYR7
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=1,9) .

<> <> <> <>

II=47	1002	TS	SYSDATA	E&PRQTYR7
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=10,18)

<> <> <> <>

II=47	1006	TS	SYSDATA	E&PRQTYR7
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT),NT=10,18) .

<> <> <> <>

II=48	1000	TS	SYSDATA	E&PRQTRY8
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
BTUS PER YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
(NMFUEL(KLAS(ILAS))) IN ALL RELEVANT REGIONS(NMREG) .

<> <> <> <>

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
II=48	1001	TS	SYSDATA	EEPRQTYR8

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
(NMREG).

<> <> <> <>

II=48	1002	TS	SYSDATA	EEPRQTYR8
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=1,9).

<> <> <> <>

II=48	1003	TS	SYSDATA	EEPRQTYR8
-------	------	----	---------	-----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K)
AND (QTY(K,NT),NT = 1,9).

<> <> <> <>

II=48	1004	TS	SYSDATA	EEPRQTYR8
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
(NYR(NT),NT=10,18)

<> <> <> <>

II=48	1003	TS	SYSDATA	EEPRQTYR8
-------	------	----	---------	-----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K)
AND FOR (QTY(K,NT), NT=10,18).

<> <> <> <>

II=48	1004	TS	SYSDATA	EEPRQTYR8
-------	------	----	---------	-----------

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

FORMAT : (1H1,5X,9(7X,I4)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR (NYR{NT}, NT=1,9).

<> <> <> <>

II=48	1006	TS	SYSDATA	E&PRQTYR8
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=1,9).

<> <> <> <>

II=48	1002	TS	SYSDATA	E&PRQTYR8
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR{NT}, NT=10,18)

<> <> <> <>

II=48	1006	TS	SYSDATA	E&PRQTYR8
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=10,18).

<> <> <> <>

II=49	1000	TS	SYSDATA	E&PRQTRY9
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
BTUS PER YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
(NMFUEL(KLAS(ILAS))) IN ALL RELEVANT REGIONS(NMREG).

<> <> <> <>

II=49	1001	TS	SYSDATA	E&PRQTYR9
-------	------	----	---------	-----------

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

FORMAT : {1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
(NMREG).

<> <> <> <>

II=49	1002	TS	SYSDATA	88PRQTYR9
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=1,9).

<> <> <> <>

II=49	1003	TS	SYSDATA	88PRQTYR9
-------	------	----	---------	-----------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K)
AND (QTY(K,NT),NT = 1,9).

<> <> <> <>

II=49	1004	TS	SYSDATA	88PRQTYR9
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
(NYR(NT),NT=10,18)

<> <> <> <>

II=49	1003	TS	SYSDATA	88PRQTYR9
-------	------	----	---------	-----------

FORMAT : (IX,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K)
AND FOR (QTY(K,NT), NT=10,18).

<> <> <> <>

II=49	1004	TS	SYSDATA	88PRQTYR9
-------	------	----	---------	-----------

FORMAT : (1H1,5X,9(7X,I4))

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR {NYR(NT), NT=1, 9) .

<> <> <> <>

II=49	1006	TS	SYSDATA	&&PRQTYR9
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=1,9) .

<> <> <> <>

II=49	1002	TS	SYSDATA	&&PRQTYR9
-------	------	----	---------	-----------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT), NT=10,18)

<> <> <> <>

II=49	1006	TS	SYSDATA	&&PRQTYR9
-------	------	----	---------	-----------

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
AND (PRC(I,NT), NT=10,18) .

<> <> <> <>

II=50	1000	TS	SYSDATA	&&PRQTRY10
-------	------	----	---------	------------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , PERTURBING ',A4,'P'/1X,'QUANTITIES IN TRILLIONS OF
BTUS PER YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR ALL FUELS:
(NMFUEL(KLAS(ILAS))) IN ALL RELEVANT REGIONS(NMREG) .

<> <> <> <>

II=50	1001	TS	SYSDATA	&&PRQTYR0
-------	------	----	---------	-----------

FORMAT : (1H1,'FULL QUANTITY AND PRICE ARRAY FOR ',A4,
' , BASE CASE'/1X,'QUANTITIES IN TRILLIONS OF BTUS PER
YEAR'/ 1X,'PRICES IN \$ PER MILLION BTUS')

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT - A BASE CASE
(NMREG) .

<> <> <> <>

II=50	1002	TS	SYSDATA	E&PROQTYRO
-------	------	----	---------	------------

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
(NYR(NT),NT=1,9) .

<> <> <> <>

II=50	1003	TS	SYSDATA	E&PROQTYRO
-------	------	----	---------	------------

FORMAT : (1X,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR: NMFUEL(K) :
AND (QTY(K,NT),NT = 1,9) .

<> <> <> <>

II=50	1004	TS	SYSDATA	E&PROQTYRO
-------	------	----	---------	------------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
(NYR(NT),NT=10,18)

<> <> <> <>

II=50	1003	TS	SYSDATA	E&PROQTYRO
-------	------	----	---------	------------

FORMAT : (IX,A4,1X,9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(K) :
AND FOR (QTY(K,NT), NT=10,18) .

<> <> <> <>

II=50	1004	TS	SYSDATA	E&PROQTYRO
-------	------	----	---------	------------

FORMAT : (1H1,5X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT
FOR (NYR(NT),NT=1,9) .

<> <> <> <>

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

II=50 1006 TS SYSDATA &&PROTYR0

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
 AND (PRC(I,NT), NT=1,9).

<> <> <> <>

II=50 1002 TS SYSDATA &&PROTYR0

FORMAT : (6X,9(7X,I4))

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR
 (NYR(NT), NT=10,18)

<> <> <> <>

II=50 1006 TS SYSDATA &&PROTYR0

FORMAT : (1X,A4,'P',9F11.3)

DESCRIPTION: CONTAINS ENERGY BALANCE REPORT FOR NMFUEL(I)
 AND (PRC(I,NT), NT=10,18).

<> <> <> <>

JELAST=11 9910 TS SYSDATA &&ELASTR1

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,' TIME = ',A2,':',A2//1X,'BENCH YEAR =
 ',I2/1X,'PRICE PATH METHOD = ',
 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR

Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDPOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
	(IFSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR (IFBHKP).			

<> <> <> <>

JELAST=12	9910	TS	SYSDATA	8&ELASTR2
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,', TIME = ', A2,':',A2//1X,'BENCH YEAR =
 ',12/1X,'PRICE PATH METHOD = ',
 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF
 REGIONS (NMBEG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
 (IFSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING
 METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR
 (IDMETH) AND GAS REGULATION
 NORMALIZATION INDICATOR (IFBHKP).

<> <> <> <>

JELAST=13	9910	TS	SYSDATA	8&ELASTR3
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,', TIME = ', A2,':',A2//1X,'BENCH YEAR =
 ',12/1X,'PRICE PATH METHOD = ',
 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDPOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA (IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR (IFPSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR (IFBHKP).

<> <> <> <>

JELAST=14	9910	TS	SYSDATA	E&ELASTR4
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE = ',2A4,' TIME = ',A2,':',A2//1X,'BENCH YEAR = ',I2/1X,'PRICE PATH METHOD = ',
'DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS - ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA (IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR (IFPSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR (IFBHKP).

<> <> <> <>

JELAST=15	9910	TS	SYSDATA	E&ELASTR5
-----------	------	----	---------	-----------

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE = ',2A4,' TIME = ',A2,':',A2//1X,'BENCH YEAR = ',I2/1X,'PRICE PATH METHOD = ',

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
 (IFSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING
 METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR
 (IDMETH) AND GAS REGULATION
 NORMALIZATION INDICATOR (IFBHKP).

<> <> <> <>

JELAST=16 9910 TS SYSDATA &&ELASTR6

FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,', TIME = ', A2,':',A2//1X,'BENCH YEAR =
 ',I2/1X,'PRICE PATH METHOD = ',
 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
 (IFSIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING
 METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR
 (IDMETH) AND GAS REGULATION
 NORMALIZATION INDICATOR (IFBHKP).

<> <> <> <>

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
JELAST=17	9910	TS	SYSDATA	EEELASTR7

FORMAT : {1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,' TIME = ',A2,':',A2//1X,'BENCH YEAR =
 ',I2/1X,'PRICE PATH METHOD = ',
 'DONE - {ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - {AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO
 ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR
 (IFPIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING
 METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR
 (IDMETH) AND GAS REGULATION
 NORMALIZATION INDICATOR (IFBHKP).

<> <> <> <>

JELAST=18	9910	TS	SYSDATA	EEELASTR8
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FORMAT : {1H1,'REGIONAL DEMAND FORECASTING MODEL FOR
 REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE =
 ',2A4,' TIME = ',A2,':',A2//1X,'BENCH YEAR =
 ',I2/1X,'PRICE PATH METHOD = ',
 'DONE - {ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',L1/1X,'TRANS MODEL PARAMETERS - {AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF
 REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF
 RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR
 (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA
 (IPMETH), INDICATOR FOR METHOD TO BE USED IN
 CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
	<p>ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR (IPASIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR (IFBHKP).</p>			

<> <> <> <>

JELAST=19	9910	TS	SYSDATA	88ELASTR9
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FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE = ',2A4,' TIME = ',A2,':',A2//1X,'BENCH YEAR = ',I2/1X,'PRICE PATH METHOD = ',

'DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS - ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA (IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR (IPASIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR (IFBHKP).

<> <> <> <>

JELAST=20	9910	TS	SYSDATA	88ELASTRO
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FORMAT : (1H1,'REGIONAL DEMAND FORECASTING MODEL FOR REGION ',A4//1X,'THIS IS A ',14A4,' RUN, DATE = ',2A4,' TIME = ',1 A2,':',A2//1X,'BENCH YEAR = ',I2/1X,'PRICE PATH METHOD = ',

'DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? - ',L1/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS - ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS REG NORMALIZATIONS - ',14I2)

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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDPOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS INFORMATION ON MODEL RUN -- NUMBER OF REGIONS (NMREG), RUN IDENTIFICATION (IDRUN), DATE OF RUN (MDATE), TIME OF RUN (TIME), LAST DATA YEAR (IYBNCH), INDICATOR FOR PRICE PERTURBATION FORMULA (IPMETH), INDICATOR FOR METHOD TO BE USED IN CALCULATING ELASTICITY (IEMETH), INDICATOR TO DO ELASTICITY PERTURBATION (IFELAS), SIC CONTROL INDICATOR (IPASIC), PARAMETERS (IPARM), INDICATOR FOR BENCHMARKING METHOD (IBMETH), FUEL INDEXING METHOD INDICATOR (IDMETH) AND GAS REGULATION NORMALIZATION INDICATOR (IFBHKP).

<> <> <> <>

6	100	---	PRINTER	PRINTER
---	-----	-----	---------	---------

FORMAT : (1X,'PERTURB ',A4,'P')

DESCRIPTION: CONTAINS FUEL ELASTICITIES (NMFUEL(KLAS(ILAS))).

<> <> <> <>

6	1	PRINTER	PRINTER
---	---	---------	---------

FORMAT : (1X,'RESIDENTIAL SECTOR')

DESCRIPTION: CONTAINS RESIDENTIAL SECTOR.

<> <> <> <>

6	1	---	PRINTER	PRINTER
---	---	-----	---------	---------

FORMAT : (1X,'COMMERCIAL SECTOR')

DESCRIPTION: CONTAINS HEADING FOR COMMERCIAL SECTOR.

<> <> <> <>

6	1	---	PRINTER	PINTER
---	---	-----	---------	--------

FORMAT : (1X,'AGGREGATE INDUSTRIAL SECTOR')

DESCRIPTION: CONTAINS HEADING FOR INDUSTRIAL SECTOR.

<> <> <> <>

6	100	---	PRINTER	PRINTER
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Detailed Explanation and Documentation of the Software Package

TABLE V.3: COMPLETE SPECIFICATIONS OF RDFOR OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FORMAT : (1X,'TRANSPORTATION SECTOR')

DESCRIPTION: CONTAINS HEADING FOR TRANSPORTATION SECTOR.

<> <> <> <>

6	100	---	PRINTER	PRINTER
---	-----	-----	---------	---------

FORMAT : (1X,'COMPUTE ELASTICITIES FOR ',A4,'P')

DESCRIPTION: CONTAINS COMPUTER ELASTICITIES
(NMFUEL(KLAS(ILAS))).

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
03	3010	TS	SYSDATA	&TIMEDATE

FORMAT : (1X,2A4,1X,A2,1X,A2)

DESCRIPTION: CONTAINS CONTROL INFORMATION. NDATE, TIME(1), TIME(2).

<> <> <> <>

08	3002	TS	SYSDATA	&AUDIT
----	------	----	---------	--------

FORMAT : (1X,'THE FOLLOWING INFORMATION CHARACTERIZES THE RUN ', 'FROM WHICH THE SHIFTS ARE MADE: '//1X,'RD4 IS ',26A4/8X,'PRICE',4X,'MACRO',4X,'PARAM',4X,'QINIT',13X,'MPGSTD'/ 1X,'DFACE CONTROL IS ',2A4,' CONSERVATION FILE IS ',2A4, ', CODE IS DATED ',2A4,' ,DATE = ',2A4,' , TIME = ',A2,' : ',A2/)

DESCRIPTION: CONTAINS CONTROL FILES: IDRUN, IDCNTL, ICNS, ICODE, NDATE, TIME(1), TIME(2).

<> <> <> <>

09	3002	TS	SYSDATA	&VLOG
----	------	----	---------	-------

FORMAT : (1X,'THE FOLLOWING INFORMATION CHARACTERIZES THE RUN ', 'FROM WHICH THE SHIFTS ARE MADE: '//1X,'RD4 IS ',26A4/8X,'PRICE',4X,'MACRO',4X,'PARAM',4X,'QINIT',13X,'MPGSTD'/ 1X,'DFACE CONTROL IS ',2A4,' CONSERVATION FILE IS ',2A4, ', CODE IS DATED ',2A4,' ,DATE = ',2A4,' , TIME = ',A2,' : ',A2/)

DESCRIPTION: CONTAINS CONTROL FILES: IDRUN, IDCNTL, ICNS, ICODE, NDATE, TIME(1), TIME(2).

<> <> <> <>

09	3005	TS	SYSDATA	&VLOG
----	------	----	---------	-------

FORMAT : (//1X,'UPDATE TO ',2A4,' , DATE = ',2A4,' , TIME = ',A2, ' : ',A2,' , DEMPT & EPIES ARE ',2A4/)

DESCRIPTION: CONTAINS CONTROL INFORMATION: IVERS, NDATE, TIME(1), TIME(2), IRNNME.

<> <> <> <>

08	3003	TS	SYSDATA	&AUDIT
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TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

FORMAT : (1X,'THE FOLLOWING INFORMATION CHARACTERIZES
THE RUN ', 'USED TO CALIBRATE THE DEMAND
SHIFTS: '//1X,'RD4 IS ',26A4/
8X,'PRICE',4X,'MACRO',4X,
'PARAM',4X,'QINIT',13X,'MPGSTD'/ 1X,'DFACE CONTROL IS
,2A4,', CONSERVATION FILE IS ',2A4, ', CODE IS DATED
,2A4,', DATE = ',2A4,', TIME = ',A2,':',A2/)

DESCRIPTION: CONTAINS INPUT FILES:
IDRUN, IDCNTL, ICNS, ICODE, NDATE, TIME(1), TIME(2).

<> <> <> <>

09	3003	TS	SYSDATA	EVLOG
----	------	----	---------	-------

FORMAT : (1X,'THE FOLLOWING INFORMATION CHARACTERIZES
THE RUN ', 'USED TO CALIBRATE THE DEMAND
SHIFTS: '//1X,'RD4 IS ',26A4/
8X,'PRICE',4X,'MACRO',4X,
'PARAM',4X,'QINIT',13X,'MPGSTD'/ 1X,'DFACE CONTROL IS
,2A4,', CONSERVATION FILE IS ',2A4, ', CODE IS DATED
,2A4,', DATE = ',2A4,', TIME = ',A2,':',A2/)

DESCRIPTION: CONTAINS INPUT FILES:
IDRUN, IDCNTL, ICNS, ICODE, NDATE, TIME(1), TIME(2).

<> <> <> <>

06	1011	---	PRINTER	PRINTER
----	------	-----	---------	---------

FORMAT : (1X,5F8.0)

DESCRIPTION: CONTAINS EXOGENOUS SHIFT INFORMATION:
({SHBOIL(KK,LL), KK=1,5), LL=1,4)

<> <> <> <>

06	1013	---	PRINTER	PRINTER
----	------	-----	---------	---------

FORMAT : (1X,I4,F10.2)

DESCRIPTION: CONTAINS OUTPUT FOR: IBOIL(L) AND
QTY(IBOIL(K),2)

<> <> <> <>

06	1012	---	PRINTER	
----	------	-----	---------	--

FORMAT : (1X,5F8.4)

Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS OUTPUT FOR:
((SHBOIL(KK,LL) KK=1,5) ,LL=1,4)

<> <> <> <>

45	1004	CATALOG	DISK	PIESQTY
----	------	---------	------	---------

FORMAT : (1X,'DEMAND POINT QUANTITIES FOR ',A4,',
' ,11A4,' ',2A4,' ', DATE = ',2A4,' ', TIME =
' ,A2,' ':',A2/5X,3(16X,I4))

DESCRIPTION: CONTAINS CONTROL INFORMATION:
NMREG,IDRUN,IDCNTL,NDATE, TIME(1) AND TIME(2)

<> <> <> <>

45	1005	CATALOG	DISK	PIESQTY
----	------	---------	------	---------

FORMAT : (1X,A4,4X,3F20.6)

DESCRIPTION: FOR NT=1,3, IT CONTAINS
(NMFUEK,QTYP(K,NT),K=1,18),
(NMBOIL(K),QBOIL(K,NT),K=1,16) AND
(NMFUEL(K),QTYP(K,NT), K=19,30).

<> <> <> <>

46	1002	CATALOG	DISK	PIESPRC
----	------	---------	------	---------

FORMAT : (1X,'DEMAND POINT PRICES FOR ',A4,', ',11A4,'
' ,2A4,' ', DATE = ',2A4,' ', TIME =
' ,A2,' ':',A2/5X,3(16X,I4))

DESCRIPTION: CONTAINS CONTROL INFORMATION:
NMREG,(IDRUN(LL),LL=1,11),IDCNTL,
NDATE,TIME(1),TIME(2),(NYRR(IYR(NT)),NT=1,3).

<> <> <> <>

46	1007	CATALOG	DISK	PIESPRC
----	------	---------	------	---------

FORMAT : (1X,A4,'P',3X,3F20.2)

DESCRIPTION: CONTAINS PRICE VALUES: NMFUEL(K) AND
(PRCPS(K,NT) K=1,18: NT=1,3).

<> <> <> <>

46	1007	CATALOG	DISK	PIESPRC
----	------	---------	------	---------

Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FORMAT : (1X,A4,'P',3X,3F20.2)

DESCRIPTION: CONTAINS OUTPUT FOR -- NMBOIL, (PBOIL (K,NT)
K=1,16:NT=1,3).

<> <> <> <>

IWRT=42	1004	CATALOG	DISK	EPIES80
---------	------	---------	------	---------

FORMAT : (1X,'REGIONAL UNSCALED ELASTICITIES FOR
' ,A4,' , ' ,11A4, ' ' ,A4, ' ,DATE = ' ,2A4,' , TIME =
' ,A2,' : ' ,A2,' , ' ,I4)

DESCRIPTION: CONTAINS RUN CONTROL INFORMATION:
NMREG, IDRUN, IDCNTL, NDATE, TIME(1), TIME(2), AND
{NYRR(IYR(I))}.

<> <> <> <>

IWRT=42	1005	CATALOG	DISK	EPIES80
---------	------	---------	------	---------

FORMAT : (7X,10(3X,A4,'P'))

DESCRIPTION: CONTAINS INFORMATION FOR:
(NMFUEL(KLAS{KRORDR(IPR)}), IPR=1,10)

<> <> <> <>

IWRT=42	1006	CATALOG	DISK	EPIES80
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

DESCRIPTION: CONTAINS INFORMATION FOR: (NMFUEL(K) AND
(E(IYR(I),K,KRORDR(IPR)),IPR=1,10).

<> <> <> <>

IWRT=42	1006	CATALOG	DISK	EPIES80
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

DESCRIPTION: CONTAINS INFORMATION FOR:
NMBOIL(K) AND {EBOIL(I,K,KRORDR(IPR))}, IPR=1,10).

<> <> <> <>

IWRT=42	1006	CATALOG	DISK	EPIES80
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS INFORMATION FOR:
 NMFUEL(K), (E(IYR(I), K, KRORDR(IPR)), IPR=1, 10).

<> <> <> <>

IWRT=42	1006	CATALOG	DISK	EPIES80
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

DESCRIPTION: CONTAINS INFORMATION FOR:
 NMFUEL(K), (E(IYR(I), K, KRORDR(IPR)), IPR=1, 10).

<> <> <> <>

IWRT=43	1004	CATALOG	DISK	EPIES85
---------	------	---------	------	---------

FORMAT : (1X,'REGIONAL UNSCALED ELASTICITIES FOR
 ',A4,', ',11A4, ' ',A4, ',DATE = ',2A4,', TIME =
 ',A2,':',A2,', ',I4)

DESCRIPTION: CONTAINS RUN CONTROL INFORMATION:
 NMREG, IDRUN, IDCNTL, NDATE, TIME(1), TIME(2), AND
 (NYRR(IYR(I))).

<> <> <> <>

IWRT=43	1005	CATALOG	DISK	EPIES85
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FORMAT : (7X,10(3X,A4,'P'))

DESCRIPTION: CONTAINS INFORMATION FOR:
 (NMFUEL(KLAS(KRORDR(IPR))) IPR=1, 10)

<> <> <> <>

IWRT=43	1006	CATALOG	DISK	EPIES85
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

DESCRIPTION: CONTAINS INFORMATION FOR: (NMFUEL(K) AND
 (E(IYR(I), K, KRORDR (IPR)), IPR=1, 10).

<> <> <> <>

IWRT=43	1006	CATALOG	DISK	EPIES85
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS INFORMATION FOR:
 NMBOIL(K) AND (EBOIL(I,K,KRORDR(IPR)), IPR=1,10).

<> <> <> <>

IWRT=43	1006	CATALOG	DISK	EPIES85
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

DESCRIPTION: CONTAINS INFORMATION FOR:
 NMFUEL(K), (E(IYR(I),K,KRORDR(IPR)), IPR=1,10).

<> <> <> <>

IWRT=43	1006	CATALOG	DISK	EPIES85
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

DESCRIPTION: CONTAINS INFORMATION FOR:
 NMFUEL(K), (E(IYR(I),K,KRORDR(IPR)), IPR=1,10).

<> <> <> <>

IWRT=44	1004	CATALOG	DISK	EPIES90
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FORMAT : (1X,'REGIONAL UNSCALED ELASTICITIES FOR
 ',A4,', ',11A4, ' ',A4, ',DATE = ',2A4,', TIME =
 ',A2,', ',A2,', ',I4)

DESCRIPTION: CONTAINS RUN CONTROL INFORMATION:
 NMREG,IDRUN,IDCNTRL,NDATE, TIME(1),TIME(2), AND
 (NYRR(IYR(I))).

<> <> <> <>

IWRT=44	1005	CATALOG	DISK	EPIES90
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FORMAT : (7X,10(3X,A4,'P'))

DESCRIPTION: CONTAINS INFORMATION FOR:
 (NMFUEL(KLAS(KRORDR(IPR))) IPR=1,10)

<> <> <> <>

IWRT=44	1006	CATALOG	DISK	EPIES90
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS INFORMATION FOR: (NMFUEL(K) AND
(E(IYR(I),K,KRORDR (IPR)),IPR=1,10).

<> <> <> <>

IWRT=44	1006	CATALOG	DISK	EPIES90
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

DESCRIPTION: CONTAINS INFORMATION FOR:
NMBOIL(K) AND (EBOIL(I,K,KRORDR(IPR)), IPR=1,10).

<> <> <> <>

IWRT=44	1006	CATALOG	DISK	EPIES90
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

DESCRIPTION: CONTAINS INFORMATION FOR:
NMFUEL(K), (E(IYR(I),K,KRORDR(IPR)),IPR=1,10).

<> <> <> <>

IWRT=44	1006	CATALOG	DISK	EPIES90
---------	------	---------	------	---------

FORMAT : (1X,A4,2X,10F8.3)

DESCRIPTION: CONTAINS INFORMATION FOR:
NMFUEL(K), (E(IYR(I),K,KRORDR(IPR)),IPR=1,10).

<> <> <> <>

IM=86	1003	CATALOG	DISK	DEMPOR
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FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//48X,'MMBL, MMMCF, MMMKWH &
MMTON PER YEAR'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=86	1004	CATALOG	DISK	DEMPOR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//50X,'MBL, MMCF, MMKWH & NTON
PER DAY'//)

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=86 1005 CATALOG DISK DEMPQR

FORMAT : (1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR ',A4//
57X,3A4,' SECTOR'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=86 3000 CATALOG DISK DEMPQR

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ', A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE
= ',2A4,' TIME = ', A2,' ':',A2//1X,'BENCH YEAR =
,I2/1X,'PRICE PATH METHOD = ',I2/1X,'ELASTICITY METHOD
= ',I2/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
,A2//1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT
REPORT- NMREG, (IDRUN(LL),LL=1,11),IDCNTRL,NDATE,
TIME(1),TIME(2),IYBNCH,
IPMETH,IEMETH,IFELAS,IFSIC,IPARM, IBMETH,IDMETH,IFNHKP.

<> <> <> <>

IM=86 1000 CATALOG DISK DEMPQR

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
,A4//57X,3A4,' SECTOR'//57X,'TRILLIONS OF BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=86 1001 CATALOG DISK DEMPQR

FORMAT : (/8X,13(5X,A4))

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION-
(NMFUEL(KELAS(K,I)),K=1,ILS)

<> <> <> <>

IM=86	1002	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1X,I4,3X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY INFORMATION-
NYRR(NT), (QTYBTU(KELAS(K,I),
NT),K=1,ILS), AND (QTYPU(KELAS(K,I),NT),K=1,KLS)

<> <> <> <>

IM=86	1006	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/1X,I2,'-',I2,2X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY GROWTH
RATES-- (NYR(IYBNCH), NYR(NT) AND
(QGROW(KELAS(K,I),NT),K=1,ILS)

<> <> <> <>

IM=86	1007	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR',
A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//).

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS(NMREG).

<> <> <> <>

IM=87	1003	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
,A4//57X,3A4,' SECTOR'//48X,'MMBL, MMMCF, MMMKWH &
MMTON PER YEAR'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=87	1004	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4,' SECTOR'//50X,'MBL, MMCF, MMKWH & MTON
PER DAY'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3) .

<> <> <> <>

IM=87	1005	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR ' ,A4//
57X,3A4,' SECTOR'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3) .

<> <> <> <>

IM=87	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ' , A4//1X,'THIS IS A ' ,11A4,' ' ,2A4,' RUN, DATE
= ' ,2A4,' , TIME = ' , A2,' : ' ,A2//1X,'BENCH YEAR =
' ,12/1X,'PRICE PATH METHOD = ' ,12/1X,'ELASTICITY METHOD
= ' ,12/1X,'PRICE PERTURBATIONS ' , 'DONE - {ZERO MEANS
PERTURBATION WAS SKIPPED) - ' ,10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2//1X,'TRANS MODEL PARAMETERS - {AUTO MPG STD & AIR
LOAD FACTOR) - ' ,2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ' , 'METHODS - ' ,30I2/1X,'GAS
REG NORMALIZATIONS - ' ,14I2)

DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT
REPORT- NMREG, (IDRUN(LL),LL=1,11),IDCNTRL,NDATE,
TIME(1),TIME(2),IYBNCH,
IPMETH,IEMETH,IFELAS,IFASIC,IPARM, IBMETH,IDMETH,IFNHKP.

<> <> <> <>

IM=87	1000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4,' SECTOR'//57X,'TRILLIONS OF BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3) .

<> <> <> <>

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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IM=87	1001	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION-
(NMFUEL(KELAS(K,I)),K=1,ILS)

<> <> <> <>

IM=87	1002	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1X,I4,3X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY INFORMATION-
NYRR(NT), (QTYBTU(KELAS(K,I),
NT),K=1,ILS), AND (QTYPU(KELAS(K,I),NT),K=1,KLS)

<> <> <> <>

IM=87	1006	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/1X,I2,'-',I2,2X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY GROWTH
RATES--(NYR(IYBNCH),NYR(NT) AND
(QGROW(KELAS(K,I),NT),K=1,ILS)

<> <> <> <>

IM=87	1007	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR',
A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//).

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS(NMREG).

<> <> <> <>

IM=88	1003	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
,A4//57X,3A4,' SECTOR'//48X,'MMBL, MMMCF, MMMKWH &
MMTON PER YEAR'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=88	1004	CATALOG	DISK	DEMPQR

FORMAT : {1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//50X,'MBL, MMCF, MMKWH & MTON
PER DAY'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=88	1005	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : {1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR ' ,A4//
57X,3A4,' SECTOR'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=88	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : {1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ', A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE
= ',2A4,' , TIME = ', A2,' : ',A2//1X,'BENCH YEAR =
' ,I2/1X,'PRICE PATH METHOD = ',I2/1X,'ELASTICITY METHOD
= ',I2/1X,'PRICE PERTURBATIONS ', 'DONE - {ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2//1X,'TRANS MODEL PARAMETERS - {AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT
REPORT- NMREG, (IDRUN(LL),LL=1,11),IDCNTL,NDATE,
TIME(1),TIME(2),IYBNCH,
IPMETH,IEMETH,IFELAS,IFSIC,IPARM, IBMETH,IDMETH,IFNHKP.

<> <> <> <>

IM=88	1000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : {1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//57X,'TRILLIONS OF BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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<> <> <> <>

IM=88	1001	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION-
(NMFUEL(KELAS(K,I)),K=1,ILS)

<> <> <> <>

IM=88	1002	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1X,I4,3X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY INFORMATION-
NYRR(NT), (QTYBTU(KELAS(K,I),
NT),K=1,ILS), AND (QTYPU(KELAS(K,I),NT),K=1,KLS)

<> <> <> <>

IM=88	1006	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/1X,I2,'-',I2,2X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY GROWTH
RATES--(NYR(IYBNCH),NYR(NT) AND
(QGROW(KELAS(K,I),NT),K=1,ILS)

<> <> <> <>

IM=88	1007	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR',
A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS(NMREG).

<> <> <> <>

IM=89	1003	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
,A4//57X,3A4,'SECTOR'//48X,'MMBL, MMMCF, MMMKWH &
MMTON PER YEAR'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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<> <> <> <>

IM=89	1004	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
'A4//57X,3A4,' SECTOR'//50X,'MBL, MMCF, MMKWH & MTON
PER DAY'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=89	1005	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR 'A4//
57X,3A4,' SECTOR'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=89	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ', A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE
= ',2A4,' TIME = ', A2,' ',A2//1X,'BENCH YEAR =
'I2/1X,'PRICE PATH METHOD = ',I2/1X,'ELASTICITY METHOD
= ',I2/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
'A2//1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
'30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT
REPORT- NMREG, (IDRUN(LL),LL=1,11),IDCNTRL,NDATE,
TIME(1),TIME(2),IYBNCH,
IPMETH,IEMETH,IFELAS,IFSIC,IPARM, IBMETH,IDMETH,IFNHKP.

<> <> <> <>

IM=89	1000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
'A4//57X,3A4,' SECTOR'//57X,'TRILLIONS OF BTUS'//)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L), L=1,3) .

<> <> <> <>

IM=89	1001	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION-
(NMFUEL(KELAS(K,I)), K=1, ILS)

<> <> <> <>

IM=89	1002	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1X,I4,3X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY INFORMATION-
NYRR(NT), (QTYBTU(KELAS(K,I),
NT), K=1, ILS), AND (QTYPU(KELAS(K,I), NT), K=1, KLS)

<> <> <> <>

IM=89	1006	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/1X,I2,'-',I2,2X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY GROWTH
RATES--(NYR(IYBNCH), NYR(NT) AND
(QGROW(KELAS(K,I), NT), K=1, ILS)

<> <> <> <>

IM=89	1007	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR',
A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS(NMREG) .

<> <> <> <>

IM=90	1003	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
,A4//57X,3A4, ' SECTOR'//48X,'MMBL, MMMCF, MMMKWH &
MMTON PER YEAR'//)

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
 NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=90	1004	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
 ',A4//57X,3A4,' SECTOR'//50X,'MBL, MMCF, MMKWH & MTON
 PER DAY'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
 NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=90	1005	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR ',A4//
 57X,3A4,' SECTOR'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS:
 NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=90	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
 REGION ', A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE
 = ',2A4,' TIME = ', A2,' ',A2//1X,'BENCH YEAR =
 ',12/1X,'PRICE PATH METHOD = ',12/1X,'ELASTICITY METHOD
 = ',12/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',A2//1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT
 REPORT- NMREG, (IDRUN(LL),LL=1,11),IDCNTRL,NDATE,
 TIME(1),TIME(2),IYBNCH,
 IPMETH,IEMETH,IFELAS,IFSIC,IPARM, IBMETH,IDMETH,IFNHKP.

<> <> <> <>

IM=90	1000	CATALOG	DISK	DEMPQR
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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//57X,'TRILLIONS OF BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L), L=1,3).

<> <> <> <>

IM=90	1001	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION-
(NMFUEL(KELAS(K,I)), K=1,ILS)

<> <> <> <>

IM=90	1002	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1X,I4,3X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY INFORMATION-
NYRR(NT), (QTYBTU(KELAS(K,I),
NT), K=1,ILS), AND (QTYPU(KELAS(K,I),NT), K=1,KLS)

<> <> <> <>

IM=90	1006	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/1X,I2,'-',I2,2X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY GROWTH
RATES-- (NYR(IYBNCH), NYR(NT) AND
(QGROW(KELAS(K,I),NT), K=1,ILS)

<> <> <> <>

IM=90	1007	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR',
A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS (NMREG).

<> <> <> <>

IM=91	1003	CATALOG	DISK	DEMPQR
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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//48X,'MMBL, MMMCF, MMMKWH &
MNTON PER YEAR'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3) .

<> <> <> <>

IM=91	1004	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//50X,'MBL, MMCF, MMKWH & MTON
PER DAY'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3) .

<> <> <> <>

IM=91	1005	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR ' ,A4//
57X,3A4, ' SECTOR'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3) .

<> <> <> <>

IM=91	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ' , A4//1X,'THIS IS A ' ,11A4, ' ' ,2A4, ' RUN, DATE
= ' ,2A4, ' , TIME = ' , A2, ' : ' ,A2//1X,'BENCH YEAR =
' ,12/1X,'PRICE PATH METHOD = ' ,12/1X,'ELASTICITY METHOD
= ' ,12/1X,'PRICE PERTURBATIONS ' , 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ' ,10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2//1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ' ,2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ' , 'METHODS - ' ,30I2/1X,'GAS
REG NORMALIZATIONS - ' ,14I2)

DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT
REPORT- NMREG, (IDRUN(LL),LL=1,11),IDCNTRL,NDATE,
TIME(1),TIME(2),IYBNCH,
IPMETH,IEMETH,IFELAS,IFSIC,IPARM, IBMETH,IDMETH,IFNHKP.

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

<> <> <> <>

IM=91 1000 CATALOG DISK DEMPQR

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
 ',A4//57X,3A4,' SECTOR'//57X,'TRILLIONS OF BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
 NMREG,(NMSEC(I,L),L=1,3) .

<> <> <> <>

IM=91 1001 CATALOG DISK DEMPQR

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION-
 (NMFUEL(KELAS(K,I)),K=1,ILS)

<> <> <> <>

IM=91 1002 CATALOG DISK DEMPQR

FORMAT : (1X,I4,3X,13F9.2).

DESCRIPTION: CONTAINS QUANTITY INFORMATION-
 NYRR(NT),(QTYBTU(KELAS(K,I),
 NT),K=1,ILS),AND {QTYPU(KELAS(K,I),NT),K=1,KLS)

<> <> <> <>

IM=91 1006 CATALOG DISK DEMPQR

FORMAT : (/1X,I2,'-',I2,2X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY GROWTH
 RATES--(NYR(IYBNCH),NYR(NT) AND
 (QGROW(KELAS(K,I),NT),K=1,ILS)

<> <> <> <>

IM=91 1007 CATALOG DISK DEMPQR

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR',
 A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS(NMREG) .

<> <> <> <>

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=92	1003	CATALOG	DISK	DEMPQR

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//48X,'MMBL, MMMCF, MMMKWH &
MMTON PER YEAR'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=92	1004	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//50X,'MBL, MMCF, MMKWH & MTON
PER DAY'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=92	1005	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR ' ,A4//
57X,3A4,' SECTOR'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=92	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ' , A4//1X,'THIS IS A ' ,11A4,' ' ,2A4,' RUN, DATE
= ' ,2A4,' TIME = ' , A2,' : ' ,A2//1X,'BENCH YEAR =
' ,12/1X,'PRICE PATH METHOD = ' ,12/1X,'ELASTICITY METHOD
= ' ,12/1X,'PRICE PERTURBATIONS ' , 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ' ,10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2//1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ' ,2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ' , 'METHODS - ' ,30I2/1X,'GAS
REG NORMALIZATIONS - ' ,14I2)

DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT
REPORT- NMREG, (IDRUN(LL),LL=1,11),JDCNTI,NDATE,

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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TIME(1),TIME(2),IYBNCH,
IPMETH,IEMETH,IFELAS,IFSIC,IPARM, IBMETH,IDMETH,IFNHKP.

<> <> <> <>

IM=92	1000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
'A4//57X,3A4,' SECTOR'//57X,'TRILLIONS OF BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG,(NMSEC(I,L),L=1,3).

<> <> <> <>

IM=92	1001	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION-
{NMPUEL(KELAS(K,I)),K=1,ILS)

<> <> <> <>

IM=92	1002	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1X,I4,3X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY INFORMATION-
NYRR(NT),(QTYBTU(KELAS(K,I),
NT),K=1,ILS),AND {QTYPU(KELAS(K,I),NT),K=1,KLS)

<> <> <> <>

IM=92	1006	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/1X,I2,'-',I2,2X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY GROWTH
RATES--{NYR(IYBNCH),NYR(NT) AND
{QGROW(KELAS(K,I),NT),K=1,ILS)

<> <> <> <>

IM=92	1007	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR',
A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//).

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS INFORMATION FOR REGIONS (NMREG).

<> <> <> <>

IM=93	1003	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//48X,'MMBL, MMMCF, MMMKWH &
MMTON PER YEAR'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=93	1004	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//50X,'MBL, MMCF, MMKWH & MTON
PER DAY'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=93	1005	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR ' ,A4//
57X,3A4,' SECTOR'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

IM=93	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ' , A4//1X,'THIS IS A ' ,11A4,' ' ,2A4,' RUN, DATE
= ' ,2A4,' , TIME = ' , A2,' : ' ,A2//1X,'BENCH YEAR =
' ,I2/1X,'PRICE PATH METHOD = ' ,I2/1X,'ELASTICITY METHOD
= ' ,I2/1X,'PRICE PERTURBATIONS ' , 'DONE - {ZERO MEANS
PERTURBATION WAS SKIPPED) - ' ,10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2//1X,'TRANS MODEL PARAMETERS - {AUTO MPG STD & AIR
LOAD FACTOR) - ' ,2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ' , 'METHODS - ' ,30I2/1X,'GAS
REG NORMALIZATIONS - ' ,14I2)

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
<p>DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT REPORT- NMREG, (IDRUN(LL),LL=1,11),IDCNTL,NDATE, TIME(1),TIME(2),IYBNCH, IPMETH,IEMETH,IFELAS,IFSIC,IPARM, IBMETH,IDMETH,IFNHKP.</p> <p style="text-align: center;"><> <> <> <></p>				
IM=93	1000	CATALOG	DISK	DEMPQR
<p>FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR ',A4//57X,3A4, ' SECTOR'//57X,'TRILLIONS OF BTUS'//)</p> <p>DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS: NMREG, (NMSEC(I,L),L=1,3).</p> <p style="text-align: center;"><> <> <> <></p>				
IM=93	1001	CATALOG	DISK	DEMPQR
<p>FORMAT : (/8X,13(5X,A4))</p> <p>DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION- (NMPFUEL(KELAS(K,I)),K=1,ILS)</p> <p style="text-align: center;"><> <> <> <></p>				
IM=93	1002	CATALOG	DISK	DEMPQR
<p>FORMAT : (1X,I4,3X,13F9.2)</p> <p>DESCRIPTION: CONTAINS QUANTITY INFORMATION- NYRR(NT),{QTYBTU(KELAS(K,I), NT),K=1,ILS},AND {QTYPU(KELAS(K,I),NT),K=1,KLS}</p> <p style="text-align: center;"><> <> <> <></p>				
IM=93	1006	CATALOG	DISK	DEMPQR
<p>FORMAT : (/1X,I2,'-',I2,2X,13F9.2)</p> <p>DESCRIPTION: CONTAINS QUANTITY GROWTH RATES--(NYR(IYBNCH),NYR(NT) AND (OGROW(KELAS(K,I),NT),K=1,ILS)</p> <p style="text-align: center;"><> <> <> <></p>				
IM=93	1007	CATALOG	DISK	DEMPQR

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=94	1003	CATALOG	DISK	DEMPQR

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR',
 A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//).

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS(NMREG) .

<> <> <> <>

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=94	1003	CATALOG	DISK	DEMPQR

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
 ',A4//57X,3A4,' SECTOR'//48X,'MMBL, MMMCF, MMMKWH &
 MMTON PER YEAR'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
 NMREG, (NMSEC(I,L),L=1,3) .

<> <> <> <>

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=94	1004	CATALOG	DISK	DEMPQR

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
 ',A4//57X,3A4,' SECTOR'//50X,'MBL, MMCF, MMKWH & MTON
 PER DAY'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
 NMREG, (NMSEC(I,L),L=1,3) .

<> <> <> <>

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=94	1005	CATALOG	DISK	DEMPQR

FORMAT : (1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR ',A4//
 57X,3A4,' SECTOR'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS:
 NMREG, (NMSEC(I,L),L=1,3) .

<> <> <> <>

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=94	3000	CATALOG	DISK	DEMPQR

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
 REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE
 = ',2A4,' TIME = ',A2,' ',A2//1X,'BENCH YEAR =
 ',12/1X,'PRICE PATH METHOD = ',12/1X,'ELASTICITY METHOD
 = ',12/1X,'PRICE PERTURBATIONS ',DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO FORMAT LABEL VOL NO DEVICE-TYPE NAME*

' ,A2//1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ' ,2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ' ,METHODS - ' ,30I2/1X,'GAS
REG NORMALIZATIONS - ' ,14I2)

DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT
REPORT- NMREG, (IDRUN(LL),LL=1,11),IDCNTRL,NDATE,
TIME(1),TIME(2),IYBNCH,
IPMETH,IEMETH,IFELAS,IFPIC,IPARM, IBMETH,IDMETH,IFNHKP.

<> <> <> <>

IM=94 1000 CATALOG DISK DEMPQR

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
' ,A4//57X,3A4, ' SECTOR'//57X,'TRILLIONS OF BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
NMREG, (NMSEC(I,L),L=1,3),

<> <> <> <>

IM=94 1001 CATALOG DISK DEMPQR

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION-
(NMFUEL(KELAS(K,I)),K=1,ILS)

<> <> <> <>

IM=94 1002 CATALOG DISK DEMPQR

FORMAT : (1X,14,3X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY INFORMATION-
NYRR(NT), (QTYBTU(KELAS(K,I),
NT),K=1,ILS), AND (QTYPU(KELAS(K,I),NT),K=1,KLS)

<> <> <> <>

IM=94 1006 CATALOG DISK DEMPQR

FORMAT : (/1X,I2,'-',I2,2X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY GROWTH
RATES-- (NYR(IYBNCH),NYR(NT) AND
(QGROW(KELAS(K,I),NT),K=1,ILS)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
<> <> <> <>				
IM=94	1007	CATALOG	DISK	DEMPQR
FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR', A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//) DESCRIPTION: CONTAINS INFORMATION FOR REGIONS (NMREG).				
<> <> <> <>				
IM=95	1003	CATALOG	DISK	DEMPQR
FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR ',A4//57X,3A4,' SECTOR'//48X,'MMBL, MMMCF, MMMKWH & MMTON PER YEAR'//) DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS: NMREG, (NMSEC(I,L),L=1,3).				
<> <> <> <>				
IM=95	1004	CATALOG	DISK	DEMPQR
FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR ',A4//57X,3A4,' SECTOR'//50X,'MBL, MMCF, MMKWH & MTON PER DAY'//) DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS: NMREG, (NMSEC(I,L),L=1,3).				
<> <> <> <>				
IM=95	1005	CATALOG	DISK	DEMPQR
FORMAT : (1H1,45X,'REGIONAL QUANTITY GROWTH RATES FOR ',A4// 57X,3A4,' SECTOR'//60X,'ANNUAL BASIS'//) DESCRIPTION: CONTAINS INFORMATION FOR REGION AND SECTORS: NMREG, (NMSEC(I,L),L=1,3).				
<> <> <> <>				
IM=95	3000	CATALOG	DISK	DEMPQR
FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR REGION ', A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE = ',2A4,' ', TIME = ', A2,' ':',A2//1X,'BENCH YEAR =				

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

```
-----
UNIT NO  FORMAT LABEL  VOL NO    DEVICE-TYPE  NAME*
-----
      ',I2/1X,'PRICE PATH METHOD = ',I2/1X,'ELASTICITY METHOD
      = ',I2/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
      PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
      INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
      ',A2//1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
      LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
      ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
      REG NORMALIZATIONS - ',14I2)
```

DESCRIPTION: CONTAINS CONTROL INFORMATION FOR OUTPUT
 REPORT- NMREG, (IDRUN(LL),LL=1,11),IDCNLT,NDATE,
 TIME(1),TIME(2),IYBNCH,
 IPMETH,IEMETH,IFELAS,IFSIC,IPARM, IBMETH,IDMETH,IPNHKP.

<> <> <> <>

```
IM=95      1000      CATALOG      DISK      DEMPQR
```

FORMAT : (1H1,49X,'REGIONAL QUANTITY ARRAY FOR
 ',A4//57X,3A4,' SECTOR'//57X,'TRILLIONS OF BTUS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS AND SECTORS:
 NMREG, (NMSEC(I,L),L=1,3).

<> <> <> <>

```
IM=95      1001      CATALOG      DISK      DEMPQR
```

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS FUEL ELASTICITY INFORMATION-
 (NMFUEL(KELAS(K,I)),K=1,ILS)

<> <> <> <>

```
IM=95      1002      CATALOG      DISK      DEMPQR
```

FORMAT : (1X,I4,3X,13F9.2)

DESCRIPTION: CONTAINS QUANTITY INFORMATION-
 NYRR(NT), (QTYBTU(KELAS(K,I),
 NT),K=1,ILS), AND (QTYPU(KELAS(K,I),NT),K=1,KLS)

<> <> <> <>

```
IM=95      1006      CATALOG      DISK      DEMPQR
```

FORMAT : (/1X,I2,'-',I2,2X,13F9.2)

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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DESCRIPTION: CONTAINS QUANTITY GROWTH
 RATES--(NYR(IYBNCH), NYR(NT) AND
 (QGROW(KELAS(K, I), NT), K=1, ILS)

<> <> <> <>

IM=95	1007	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR',
 A4//60X,'ALL SECTORS'//54X,'DOLLARS PER MILLION BTUS'//).

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS(NMREG).

<> <> <> <>

IM=86	1008	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/6X,18(2X,A4,'P'))

DESCRIPTION: CONTAINS FUEL INFORMATION--NMFUEL(K), K=1, 18

IM=86	1009	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (/1X,I4,1X,18F7.2)

DESCRIPTION: CONTAINS ANNUAL PRICE VALUES--NYRR(NT), ((PRC
 (K, NT), PRCPU(K, NT), NT=1, 18: K=1, 18).

<> <> <> <>

IM=86	1010	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,52X,'REGIONAL PRICE ARRAY FOR ',A4//60X,
 'ALL SECTORS'//53X,'DOLLARS PER PHYSICAL UNIT'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGION(NMREG).

<> <> <> <>

IM=86	1011	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,48X,'REGIONAL PRICE GROWTH RATES FOR ',A4//
 60X,'ALL SECTORS'//60X,'ANNUAL BASIS'//)

DESCRIPTION: CONTAINS INFORMATION FOR REGIONS (NMREG).

<> <> <> <>

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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
IM=86	1012	CATALOG	DISK	DEMPQR

FORMAT : (/1X,I2,'-',I2,18F7.2)

DESCRIPTION: CONTAINS ANNUAL PRICE GROWTH
 RATES--NYR(IYBNCH), NYR(NT), AND
 (PGROW(K,NT), K=1,18; NT=1,18)

<> <> <> <>

IJ=71	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
 REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
 ',2A4,' TIME = ',I2/1X,'ELASTICITY METHOD =
 ',I2/1X,'PRICE PERTURBATIONS ',DONE - (ZERO MEANS
 PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
 INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
 ',A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
 LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
 ',30I2/1X,'FUEL INDEXING ',METHODS - ',30I2/1X,'GAS
 REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
 INFORMATION--NMREG,IDRUN,IDCNTL.
 NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
 IEMETH,IFELAS,IPFIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=71	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,'
 ',3A4,' SECTOR, ',I4//)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
 (NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=71	1005	CATALOG	DISK	DEMELAS
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FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
 -- (NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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IJ=71	1006	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/1X,A4,'P',2X,13F9.3)

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
(E(NT,KELAS(K,I),IPR),K=1,ILS).

<> <> <> <>

IJ=72	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
,2A4,', TIME = ',12/1X,'ELASTICITY METHOD =
,12/1X,'PRICE PERTURBATIONS ',1X,'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
,A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
,30I2/1X,'FUEL INDEXING ',1X,'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
INFORMATION--NMREG,IDRUN,IDCNTL.
NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
IEMETH,IFELAS,IFPSIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=72	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,'
,3A4,' SECTOR, ',I4//)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
(NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=72	1005	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
-- (NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

IJ=72	1006	CATALOG	DISK	DEMELAS
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Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
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FORMAT : (/1X,A4,'P',2X,13F9.3)

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
(E(NT,KELAS(K,I),IPR),K=1,ILS).

<> <> <> <>

IJ=73	3000	CATALOG	DISK	DEMPQR
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FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
' ,2A4,' , TIME = ', I2/1X,'ELASTICITY METHOD =
' ,I2/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
INFORMATION--NMREG,IDRUN,IDCNTL.
NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
IEMETH,IPELAS,IFSIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=73	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,' ,
' ,3A4,' SECTOR, ',I4///)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
(NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=73	1005	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
--(NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

IJ=73	1006	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/1X,A4,'P',2X,13F9.3)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
(E(NT,KELAS(K,I),IPR),K=1,ILS).

<> <> <> <>

IJ=74	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
' ,2A4,' , TIME = ', I2/1X,'ELASTICITY METHOD =
' ,I2/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
INFORMATION--NMREG,IDRUN,IDCNTRL.
NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=74	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,' ,
' ,3A4,' SECTOR, ',I4//)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
(NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=74	1005	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
--(NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

IJ=74	1006	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/1X,A4,'P',2X,13F9.3)

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
{E(NT,KELAS(K,I),IPR),K=1,ILS).

<> <> <> <>

IJ=75	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : {1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
' ,2A4,' , TIME = ', I2/1X,'ELASTICITY METHOD =
' ,I2/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
INFORMATION--NMREG,IDRUN,IDCNTRL.
NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
IEMETH,IFELAS,IPASIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=75	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : {1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,' ,
' ,3A4,' SECTOR, ',I4//)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
{NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=75	1005	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
-- (NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

IJ=75	1006	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/1X,A4,'P',2X,13F9.3)

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
(E(NT,KELAS(K,I),IPR),K=1,ILS).

<> <> <> <>

IJ=76	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
' ',2A4,' ', TIME = ', 12/1X,'ELASTICITY METHOD =
' ',12/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ',A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
INFORMATION--NMREG,IDRUN,IDCNLT.
NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
IEMETH,IFELAS,IFPIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=76	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,' ',
' ',3A4,' SECTOR, ',I4//)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
(NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=76	1005	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
--(NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

IJ=76	1006	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/1X,A4,'P',2X,13F9.3)

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
(E(NT,KELAS(K,I),IPR),K=1,ILS).

<> <> <> <>

IJ=77	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
' ,2A4,' , TIME = ', I2/1X,'ELASTICITY METHOD =
' ,I2/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
INFORMATION--NMREG,IDRUN,IDCNLT.
NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
IEMETH,IFELAS,IFPIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=77	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,' ,
' ,3A4,' SECTOR, ',I4//)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
(NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=77	1005	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
-- (NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

IJ=77	1006	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/1X,A4,'P',2X,13F9.3)

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
(E(NT,KELAS(K,I),IPR),K=1,ILS).

<> <> <> <>

IJ=78	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
' ',2A4,' ', TIME = ', I2/1X,'ELASTICITY METHOD =
' ',I2/1X,'PRICE PERTURBATIONS ', 'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ',A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ',30I2/1X,'FUEL INDEXING ', 'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
INFORMATION--NMREG,IDRUN,IDCNL.
NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
IEMETH,IFELAS,IFPIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=78	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,' ',
' ',3A4,' SECTOR, ',I4//)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
(NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=78	1005	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
--(NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

IJ=78	1006	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/1X,A4,'P',2X,13F9.3)

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
(E(NT,KELAS(K,I),IPR),K=1,ILS).

<> <> <> <>

IJ=79	3000	CATALOG	DISK	DEMPQR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
' ,2A4,' , TIME = ',12/1X,'ELASTICITY METHOD =
' ,12/1X,'PRICE PERTURBATIONS ',1X,'DONE - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ',1X,'METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
INFORMATION--NMREG,IDRUN,IDCNTL.
NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=79	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,' ,
' ,3A4,' SECTOR, ',I4//)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
(NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=79	1005	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
--(NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

IJ=79	1006	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/1X,A4,'P',2X,13F9.3)

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
(E(NT,KELAS(K,I),IPR),K=1,ILS).

<> <> <> <>

IJ=80	3000	CATALOG	DISK	DEMPOR
-------	------	---------	------	--------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
' ,2A4,' , TIME = ',I2/1X,'ELASTICITY METHOD =
' ,I2/1X,'PRICE PERTURBATIONS ',1A4,' - (ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2/1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ,A2/1X,'TRANS MODEL PARAMETERS - (AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2/1X,'FUEL INTERCEPT METHODS -
' ,30I2/1X,'FUEL INDEXING ',1A4,' METHODS - ',30I2/1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL
INFORMATION--NMREG,IDRUN,IDCNL.
NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,
IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH AND IFNHKP.

<> <> <> <>

IJ=80	1004	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (1H1,5X,'REGIONAL ELASTICITIES FOR ',A4,' ,
' ,3A4,' SECTOR, ',I4//)

DESCRIPTION: CONTAINS SECTOR/REGION INFORMATION -- NMREG,
(NMSEC(I,L), L=1,3), NYRR(NT).

<> <> <> <>

IJ=80	1005	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/8X,13(5X,A4))

DESCRIPTION: CONTAINS REGIONAL ELASTICITIES
-- (NMFUEL(KELAS(K,I)) K=1,ILS).

<> <> <> <>

IJ=80	1006	CATALOG	DISK	DEMELAS
-------	------	---------	------	---------

FORMAT : (/1X,A4,'P',2X,13F9.3)

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS INFORMATION FOR NMFUEL(KLAS(IPR)),
(E{NT,KELAS(K,I),IPR},K=1,ILS).

<> <> <> <>

14	9910	CATALOG	DISK	HOLDER
----	------	---------	------	--------

FORMAT : (1X,3A4/)

DESCRIPTION: CONTAINS TITLE INFORMATION (TITLE).

14	9911	CATALOG	DISK	HOLDER
----	------	---------	------	--------

FORMAT : (1X,9F12.4)

DESCRIPTION: CONTAINS PERCENTAGE SHIFT INFORMATION
--{(CONSAV(K,NT,J), SOLGEO(K,NT,J), BOILSH(K,NT,J)),
NT=1,3).

<> <> <> <>

15	1000	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (1H1,'REGIONAL DEMAND INTERFACE MODEL FOR
REGION ',A4//1X,'THIS IS A ',11A4,' ',2A4,' RUN, DATE =
' ',2A4,' ', TIME = ', A2,' ':',A2//1X,'BENCH YEAR =
' ',12//1X,'PRICE PATH METHOD = ',12//1X,'ELASTICITY METHOD
= ',12//1X,'PRICE PERTURBATIONS ',1,'DONE - {ZERO MEANS
PERTURBATION WAS SKIPPED) - ',10I2//1X,'WAS
INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? -
' ',A2//1X,'TRANS MODEL PARAMETERS - {AUTO MPG STD & AIR
LOAD FACTOR) - ',2I2//1X,'FUEL INTERCEPT METHODS -
' ',30I2//1X,'FUEL INDEXING ',1,'METHODS - ',30I2//1X,'GAS
REG NORMALIZATIONS - ',14I2)

DESCRIPTION: CONTAINS RUN CONTROL INFORMATION
--NMREG,{IDRUN(LL),LL=1,11}, IDCNTL,NDATA, TIME(1),
TIME(2), IYBNCH, IPMETH, IEMETH, IFELAS, IFSIC, IPARAM,
IRMETH, IDMETH AND IFNHKP.

<> <> <> <>

15	1001	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (1H1,10X,'FINAL VERSION OF DEMAND POINT REPORT
- ',1,' INCLUDING ALL SHIFTS - IN TRILLIONS OF BTU'S -
FOR ',14//)

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

DESCRIPTION: CONTAINS FINAL VERSION REPORT --NYRR(IYR(NT)).

<> <> <> <>

15	1002	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (8X,10(6X,'FEA',I2),7X,A4/)

DESCRIPTION: CONTAINS OUTPUT FOR {(J),J=1,10) AND NMREG.

<> <> <> <>

15	1003	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (1X,A4,3X,11F11.2)

DESCRIPTION: CONTAINS OUTPUT FOR VARIABLE -- NMFUEL(K),
 {(QPSBTU (K,NT,J), CONSAV(K,NT,J), SOLGEO (K, NT, J),
 BOILSH(K,NT,J)), J=1,11) .

<> <> <> <>

15	1004	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (1H1,10X,'CONSERVATION SAVINGS - TRILLIONS OF
 ','BTU''S - FOR ',I4//)

DESCRIPTION: CONTAINS CONSERVATION SAVINGS INFORMATION
 --NYRR(IYR(NT)).

<> <> <> <>

15	1005	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (1H1,10X,'SOLAR AND GEOTHERMAL SAVINGS -
 TRILLIONS ','OF BTU''S - FOR ',I4//)

DESCRIPTION: CONTAINS INFORMATION FOR SOLAR/GEOTHERMAL
 SHIFTS --NYRR(IYR(NT)).

<> <> <> <>

15	1006	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (1H1,10X,'INDUSTRIAL BOILER SHIFTS - TRILLIONS
 ','OF BTU''S - FOR ',I4//)

DESCRIPTION: CONTAINS INFORMATION FOR BOILER SHIFTS --NYRR
 (IYR(NT)).

=====

Detailed Explanation and Documentation of the Software Package

TABLE V.4: COMPLETE SPECIFICATIONS OF DFACE OUTPUT FILES

UNIT NO	FORMAT LABEL	VOL NO	DEVICE-TYPE	NAME*
---------	--------------	--------	-------------	-------

<> <> <> <>

15	1007	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (1H1,10X,'RESIDENTIAL AND COMMERCIAL NATURAL
GAS ', 'HOOKUPS SHIFTS - TRILLIONS OF BTU'S - FOR
' ,I4//)

DESCRIPTION: CONTAINS INFORMATION FOR HOOKUPS SHIFTS
--NYRR(IYR(NT)).

<> <> <> <>

15	1008	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (1H1,10X,'INITIAL PRICES IN TRILLIONS OF
BTU'S FOR ' , I4//).

DESCRIPTION: CONTAINS INFORMATION FOR INITIAL PRICES
--NYRR(IYR(NT)).

<> <> <> <>

15	1009	CATALOG	DISK	RESULTS
----	------	---------	------	---------

FORMAT : (1X,A4,'P',2X,11F11.2)

DESCRIPTION: CONTAINS REGIONAL FUEL PRICE INFORMATION
--NMFUEL(K), (PRCREG(J, K, IYR(NT)), J=1,10) AND
PRC(K,IYR(NT)).

3. RDFOR and DFACE JCL'S

The RDFOR JOB and EXEC statements which precede the FORTRAN source codes are exhibited in Table V.5. Other JCL statements, which follow the RDFOR source codes, are listed in Table V.6. The entire DFACE JCL statements are portrayed in Table V.7. A general expository outline of the functions of these JCL's follows. A step delineation is employed and "step numbers" are spelled out as they appear in the JCL'S.

A. RDFOR JCL'S

STPA1: IEFBR14 is to scratch these data sets if they happen to have been left on on-line disk storage.

STPB1: IEFBR14 is to reallocate the data sets which might have been scratched in previous steps. If a JCL error occurs, delete step STPA1. The reason for the set of IEFBR14 is to allocate four data sets. Since DISP=(NEW...), these data sets must not previously exist; hence the first IEFBR14 to scratch. One could also use the IBM utility IEHPRGM to scratch the data sets.

STEP01-STEP04: These steps are used to copy the members (FEA01 to FEA10) of four of the SYSUT1 partitioned data sets (MACRO, PRICE, PARAM, QINIT) into continuous data sets (see SYSUT2's). These data sets have temporary names and are passed to following steps using the temporary names.

STEP05: The IECCOPY is used to copy a partitioned data set (CONTL=RD4 input control file) to another partitioned data set with a temporary name (&&CONTL) to be passed to other steps.

STEP1U: An IEBGENER copies the MPG5T file to a temporary data set to be passed to other steps.

STEP2U: An IEBGENER copies some load factors to a temporary disk data set to be passed to other steps.

=====

Detailed Explanation and Documentation of the Software Package

STEP1: The FORTRAN IV level G compiles, links and executes the RDFOR source codes. The DD cards //GO.FT01F001 through //GO.FT95F001 are various inputs, outputs, and temporary storage data sets used by the RDFOR program.

STP01-STP40: These steps are executions of the OSI/DOE utility program PRESS which compresses files by squeezing out blanks. It takes a regular print output file from SYSUT1 and compresses it into the SYSUT2 file. Notice that all the SYSUT1 files are temporary data sets passed from STEP1. These PRESS'ed files can be decompressed and printed or used as WYLBUR data sets.

B. --DFACE JCL'S--

STPA1: As in RDFOR, scratch any data sets which might have previously been allocated.

STPB1: As in RDFOR, allocate space for required data sets.

STEPHH-STEPKK: These IEBCOPY steps invoke the "compress-in-place" function of the copy command. A "compress-in-place" will occur if the input DD name (INDD) is the same as the output DD name (OUTDD). Note that 'INOUT' is used in the DD cards for the four files (SHIFTS, HOLDER, RESULTS, LOG) of concern.

STPAKK-STPT: These steps are executions of UNPRESS which is the uncompression of data sets compressed in RDFOR using utility PRESS.

STEP1: This step compiles, links, edits and executes the DFACE source codes. Note that this program is not in the runstream. The //FORT.SYSIN DD statement brings it to the runstream. Data sets FT01F001 through FT96F001 are either input, output, or temporary files for DFACE.

STPA1: Same as STPA1, above.

STPB1: Same as STPB1, above.

STPA-STPT: Same as steps STPAKK-STPT, above.

STEP1: Same as STEP1, above.

STPBKK: This step executes the OSI/DOE utility program PRESS which compresses files by squeezing out blanks.

STEP1U-STEP2U: These IEBGENER steps copy various data sets into
 one partitioned data set accessible through WILBUR or
 capable of being printed using other IEBGENER or LIST
 offlines.

LISTINGS OF RDFOR AND DFACE JCL'S

TABLE V.5: LISTING OF RDFOR BEGINNING JCL'S

```

-----
//INITIALURD4 JOB (ACCOUNT,D01,1,8,0),'NAME',TIME=6,MSGCLASS=A
//STPA1 EXEC PGM=IEFBR14
//NAMEDD DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPROTY.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//STPB1 EXEC PGM=IEFBR14
//NAMEDD DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPROTY.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(120,20,2)),
//      DCB=(RECFM=U,LRECL=3520,BLKSIZE=3520)
//NAMEDD DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(60,20,2)),
//      DCB=(RECFM=U,LRECL=3520,BLKSIZE=3520)
//NAMEDD DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(300,20,2)),
//      DCB=(RECFM=U,LRECL=3520,BLKSIZE=3520)
//NAMEDD DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(40,10,2)),
//      DCB=(RECFM=U,LRECL=3520,BLKSIZE=3520)
//STEP01 EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=%%MACRO,DISP=(NEW,PASS),UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),
//      SPACE=(TRK,(40,40),RLSE)
//SYSUT1 DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA(FEA01),
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA(FEA02),
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA(FEA03),
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA(FEA04),
//      UNIT=DASD,DISP=SHR

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//      DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA{FEA05} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA{FEA06} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA{FEA07} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA{FEA08} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA{FEA09} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.MACRO.MODMACRO.DATA{FEA10} ,
//      UNIT=DASD,DISP=SHR
//SYSIN DD DUMMY
//STEP02 EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=PRICE,DISP=(NEW,PASS),UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330) ,
//      SPACE=(TRK,(40,40),RLSE)
//SYSUT1 DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA01} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA02} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA03} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA04} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA05} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA06} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA07} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA08} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA09} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PRICE.MODPRICE.DATA{FEA10} ,
//      UNIT=DASD,DISP=SHR
//SYSIN DD DUMMY
//STEP03 EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=PARAM,DISP=(NEW,PASS),UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330) ,
//      SPACE=(TRK,(40,40),RLSE)
//SYSUT1 DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA01} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA02} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA03} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA04} ,
//      UNIT=DASD,DISP=SHR

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=====
//      DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA05} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA06} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA07} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA08} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA09} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.PARAM.MODPARAM.DATA{FEA10} ,
//      UNIT=DASD,DISP=SHR
//SYSIN DD DUMMY
//STEP04 EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=QINIT,DISP=(NEW,PASS),UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330) ,
//      SPACE=(TRK,(40,40),RLSE)
//SYSUT1 DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA01} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA02} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA03} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA04} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA05} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA06} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA07} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA08} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA09} ,
//      UNIT=DASD,DISP=SHR
//      DD DSN=CN6117.LR2.RD4IN.QINIT.MODQINIT.DATA{FEA10} ,
//      UNIT=DASD,DISP=SHR
//SYSIN DD DUMMY
//STEP05 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN DD DSN=CN6117.LR2.RD4IN.CONTL.DATA,
//      DISP=SHR,UNIT=DASD
//OUT DD DSN=QCONTL,DISP=(NEW,PASS),UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330,DSORG=PO) ,
//      SPACE=(TRK,(40,40,5),RLSE)
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSIN DD *
COPYOPER COPY      OUTDD=OUT,INDD=IN
//STEP10 EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
=====

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```
//SYSUT2 DD DSN=88MPG,DISP=(NEW,PASS),UNIT=SYSVIO,
//  SPACE=(TRK,(1,1)),DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4IN.MPGSTD.DATA(MPGSTDRD),
//  UNIT=DASD,DISP=SHR
//SYSIN DD DUMMY
//STEP2U EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=88LODFAC,DISP=(NEW,PASS),UNIT=SYSVIO,
//  SPACE=(TRK,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=80)
//SYSUT1 DD *
51.9 55.7 2*55.0 57.5 60.0 62.5 11*65.0
//SYSIN DD DUMMY
//STEP1 EXEC FORTGCLG,REGION=250K,PARM.FORT=(MAP,ID),PARM.LKED=XREF,
//  TIME.GO=5
//FORT.SYSIN DD *
```

TABLE V.6: LISTINGS OF RDFOR ENDING JCL'S

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//GO.FT01F001 DD DSN=%%MACRO,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT02F001 DD DSN=%%PRICE,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT03F001 DD DSN=%%PARAM,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT04F001 DD DSN=%%QINIT,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT08F001 DD DSN=%%CONTL(XXYYZZWW),DISP=(OLD,DELETE),UNIT=SYSDA
//GO.SYSIN DD *
MODPRICE MODMACRO MODPARAM MODQINIT VERSIONQ MPGSTDRD
//GO.FT60F001 DD DSN=%%MPG,DISP=(OLD,DELETE),UNIT=SYSVIO
//GO.FT61F001 DD DSN=%%LODFAC,DISP=(OLD,DELETE),UNIT=SYSVIO
//GO.FT41F001 DD DSN=%%PRQTYR1,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT11F001 DD DSN=%%ELASTR1,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT42F001 DD DSN=%%PRQTYR2,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT12F001 DD DSN=%%ELASTR2,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT43F001 DD DSN=%%PRQTYR3,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT13F001 DD DSN=%%ELASTR3,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT44F001 DD DSN=%%PRQTYR4,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT14F001 DD DSN=%%ELASTR4,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT45F001 DD DSN=%%PRQTYR5,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT15F001 DD DSN=%%ELASTR5,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT46F001 DD DSN=%%PRQTYR6,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT16F001 DD DSN=%%ELASTR6,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT47F001 DD DSN=%%PRQTYR7,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT17F001 DD DSN=%%ELASTR7,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT48F001 DD DSN=%%PRQTYR8,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT18F001 DD DSN=%%ELASTR8,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT49F001 DD DSN=%%PRQTYR9,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT19F001 DD DSN=%%ELASTR9,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT50F001 DD DSN=%%PRQTYR0,DISP=(NEW,PASS),UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330),SPACE=(TRK,(40,40),RLSE)
//GO.FT20F001 DD DSN=%%ELASTR0,DISP=(NEW,PASS),UNIT=SYSDA,

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// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT71F001 DD DSN=88DEBGR1,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT72F001 DD DSN=88DEBGR2,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT73F001 DD DSN=88DEBGR3,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT74F001 DD DSN=88DEBGR4,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT75F001 DD DSN=88DEBGR5,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT76F001 DD DSN=88DEBGR6,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT77F001 DD DSN=88DEBGR7,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT78F001 DD DSN=88DEBGR8,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT79F001 DD DSN=88DEBGR9,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT80F001 DD DSN=88DEBGR0,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT86F001 DD DSN=88TRDBGR1,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT87F001 DD DSN=88TRDBGR2,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT88F001 DD DSN=88TRDBGR3,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT89F001 DD DSN=88TRDBGR4,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT90F001 DD DSN=88TRDBGR5,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT91F001 DD DSN=88TRDBGR6,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT92F001 DD DSN=88TRDBGR7,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT93F001 DD DSN=88TRDBGR8,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT94F001 DD DSN=88TRDBGR9,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//GO.FT95F001 DD DSN=88TRDBGR0,DISP={NEW,PASS},UNIT=SYSDA,
// DCB={RECFM=FB,LRECL=133,BLKSIZE=1330},SPACE={TRK,(40,40),RLSE)
//STP01 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=88ELASTR1,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA01},
//      DISP=OLD,UNIT=DASD
//STP02 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=88ELASTR2,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA02},

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//      DISP=OLD,UNIT=DASD
//STP03 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=EEELASTR3,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA03},
//      DISP=OLD,UNIT=DASD
//STP04 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=EEELASTR4,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA04},
//      DISP=OLD,UNIT=DASD
//STP05 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=EEELASTR5,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA05},
//      DISP=OLD,UNIT=DASD
//STP06 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=EEELASTR6,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA06},
//      DISP=OLD,UNIT=DASD
//STP07 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=EEELASTR7,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA07},
//      DISP=OLD,UNIT=DASD
//STP08 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=EEELASTR8,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA08},
//      DISP=OLD,UNIT=DASD
//STP09 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=EEELASTR9,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA09},
//      DISP=OLD,UNIT=DASD
//STP10 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=EEELASTR0,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FELAST.DATA{FEA10},
//      DISP=OLD,UNIT=DASD
//STP11 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
```

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```
//SYSUT1 DD DSN=##PRQTYR1,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA{FEA01},
//      DISP=OLD,UNIT=DASD
//STP12 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=##PRQTYR2,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA{FEA02},
//      DISP=OLD,UNIT=DASD
//STP13 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=##PRQTYR3,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA{FEA03},
//      DISP=OLD,UNIT=DASD
//STP14 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=##PRQTYR4,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA{FEA04},
//      DISP=OLD,UNIT=DASD
//STP15 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=##PRQTYR5,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA{FEA05},
//      DISP=OLD,UNIT=DASD
//STP16 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=##PRQTYR6,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA{FEA06},
//      DISP=OLD,UNIT=DASD
//STP17 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=##PRQTYR7,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA{FEA07},
//      DISP=OLD,UNIT=DASD
//STP18 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=##PRQTYR8,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA{FEA08},
//      DISP=OLD,UNIT=DASD
//STP19 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=##PRQTYR9,DISP={OLD,DELETE},UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA{FEA09},
//      DISP=OLD,UNIT=DASD
//STP20 EXEC PGM=PRESS,REGION=30K
```

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```
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=PRQTYR0,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FPRQTY.DATA(FA01),
//      DISP=OLD,UNIT=DASD
//STP21 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEUGR1,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA(FA01),
//      DISP=OLD,UNIT=DASD
//STP22 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEUGR2,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA(FA02),
//      DISP=OLD,UNIT=DASD
//STP23 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEUGR3,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA(FA03),
//      DISP=OLD,UNIT=DASD
//STP24 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEUGR4,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA(FA04),
//      DISP=OLD,UNIT=DASD
//STP25 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEUGR5,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA(FA05),
//      DISP=OLD,UNIT=DASD
//STP26 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEUGR6,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA(FA06),
//      DISP=OLD,UNIT=DASD
//STP27 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEUGR7,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA(FA07),
//      DISP=OLD,UNIT=DASD
//STP28 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEUGR8,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA(FA08),
```

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```
//      DISP=OLD,UNIT=DASD
//STP29 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEEBUGR9,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA{FEA09},
//      DISP=OLD,UNIT=DASD
//STP30 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=DEEBUGR0,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FDEBUG.DATA{FEA10},
//      DISP=OLD,UNIT=DASD
//STP31 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=TRDBGR1,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA01},
//      DISP=OLD,UNIT=DASD
//STP32 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=TRDBGR2,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA02},
//      DISP=OLD,UNIT=DASD
//STP33 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=TRDBGR3,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA03},
//      DISP=OLD,UNIT=DASD
//STP34 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=TRDBGR4,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA04},
//      DISP=OLD,UNIT=DASD
//STP35 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=TRDBGR5,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA05},
//      DISP=OLD,UNIT=DASD
//STP36 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=TRDBGR6,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA06},
//      DISP=OLD,UNIT=DASD
//STP37 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
```

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```
//SYSUT1 DD DSN=%%TRDBG7,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA07},
//      DISP=OLD,UNIT=DASD
//STP38 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=%%TRDBG8,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA08},
//      DISP=OLD,UNIT=DASD
//STP39 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=%%TRDBG9,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA09},
//      DISP=OLD,UNIT=DASD
//STP40 EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=%%TRDBG0,DISP=(OLD,DELETE),UNIT=SYSDA
//SYSUT2 DD DSN=CN6370.SN1.RD4OUT.VERSIONQ.FTRDBG.DATA{FEA10},
//      DISP=OLD,UNIT=DASD
```

TABLE V.7: LISTINGS OF THE ENTIRE DFACE JCL'S

```

-----
//INITIALUDFCE JOB (ACCOUNT,D01,1,13,0),'NAME',TIME=4,MSGCLASS=A
//STPA1 EXEC PGM=IEFBR14
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.EPIES80.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.EPIES85.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.EPIES90.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.PIESQTY.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.PIESPRC.DATA,
//      DISP=(OLD,DELETE),
//      UNIT=DASD
//STPB1 EXEC PGM=IEFBR14
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(170,20,2)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(230,30,2)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.EPIES80.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(8,4,1)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.EPIES85.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(8,4,1)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.EPIES90.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(8,4,1)),

```

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```

=====
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.PIESQTY.DATA,
//          DISP=(NEW,CATLG),
//          UNIT=DASD,
//          SPACE=(TRK,(8,4,1)),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.PIESPRC.DATA,
//          DISP=(NEW,CATLG),
//          UNIT=DASD,
//          SPACE=(TRK,(8,4,1)),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//STEPHH EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//INOUT DD DSN=CN6117.LR2.DFACEOUT.SHIFTS.DATA,
// UNIT=DASD,DISP=SHR
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSIN DD *
COPYOPER COPY OUTDD=INOUT,INDD=INOUT
//STEPJ EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//INOUT DD DSN=CN6117.LR2.DFACEOUT.HOLDER.DATA,
// UNIT=DASD,DISP=SHR
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSIN DD *
COPYOPER COPY OUTDD=INOUT,INDD=INOUT
//STEPJJ EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//INOUT DD DSN=CN6117.LR2.DFACEOUT.RESULTS.DATA,
// UNIT=DASD,DISP=SHR
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSIN DD *
COPYOPER COPY OUTDD=INOUT,INDD=INOUT
//STEPKK EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//INOUT DD DSN=CN6117.LR2.DFACEOUT.LOG.DATA,
// UNIT=DASD,DISP=SHR
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(5,2),RLSE)
//SYSIN DD *
COPYOPER COPY OUTDD=INOUT,INDD=INOUT
//STPAKK EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&VLOG,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.DFACEOUT.LOG.DATA(VERSIONZ),
//          UNIT=DASD,DISP=SHR
/*
=====

```

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```
//STPA EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF01,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA01},
//      UNIT=DASD,DISP=SHR
/*
//STPB EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF02,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA02},
//      UNIT=DASD,DISP=SHR
/*
//STPC EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF03,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA03},
//      UNIT=DASD,DISP=SHR
/*
//STPD EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF04,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA04},
//      UNIT=DASD,DISP=SHR
/*
//STPE EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF05,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA05},
//      UNIT=DASD,DISP=SHR
/*
//STPF EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF06,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA06},
```

```
//          UNIT=DASD,DISP=SHR
/*
//STPG EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&EFEA07,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA07},
//          UNIT=DASD,DISP=SHR
/*
//STPH EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&EFEA08,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA08},
//          UNIT=DASD,DISP=SHR
/*
//STPI EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&EFEA09,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA09},
//          UNIT=DASD,DISP=SHR
/*
//STPJ EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&EFEA10,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FELAST.DATA{FEA10},
//          UNIT=DASD,DISP=SHR
/*
//STPK EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA01,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA{FEA01},
//          UNIT=DASD,DISP=SHR
/*
//STPL EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA02,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
```

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```
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA{FEA02},
//          UNIT=DASD,DISP=SHR
/*
//STPM EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA03,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA{FEA03},
//          UNIT=DASD,DISP=SHR
/*
//STPN EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA04,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA{FEA04},
//          UNIT=DASD,DISP=SHR
/*
//STPO EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA05,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA{FEA05},
//          UNIT=DASD,DISP=SHR
/*
//STPP EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA06,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA{FEA06},
//          UNIT=DASD,DISP=SHR
/*
//STPQ EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA07,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA{FEA07},
//          UNIT=DASD,DISP=SHR
/*
//STPR EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
```

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=====
//SYSUT2 DD DSN=&PQFEA08,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA(FEA08),
//      UNIT=DASD,DISP=SHR
/*
//STPS EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA09,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA(FEA09),
//      UNIT=DASD,DISP=SHR
/*
//STPT EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA10,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.RD4OUT.VERSIONY.FPRQTY.DATA(FEA10),
//      UNIT=DASD,DISP=SHR
/*
//STEP1 EXEC PORTGCLG,REGION=250K,PARM.FORT=(MAP,ID),PARM.LKED=XREF
//FORT.SYSIN DD DSN=CN6370.SN1.DFACE,DISP=SHR,UNIT=DASD,
//      VOL=SER=FEA021
//GO.FT01F001 DD DSN=CN6117.LR2.RD4IN.CONTL.DATA(CNTLPONE),
//      DISP=SHR,UNIT=DASD
//GO.SYSIN DD *
CNTLPONE
CONSHIFT
CODEDATE
VERSIONZ
RUNDATE
//GO.FT08F001 DD DSN=&AUDIT,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//GO.FT03F001 DD DSN=&TIMEDATE,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(1,1),RLSE),
//      DCB=(RECFM=FB,LRECL=80,BLKSIZE=80)
//GO.FT09F001 DD DSN=&VLOG,
//      DISP=MOD,UNIT=SYSDA
//GO.FT10F001 DD DSN=CN6117.LR2.RD4IN.QINIT.A20PRBSE.DATA(FA01),
//      DISP=SHR,UNIT=DASD
//GO.FT31F001 DD DSN=&FEA01,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT32F001 DD DSN=&FEA02,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT33F001 DD DSN=&FEA03,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT34F001 DD DSN=&FEA04,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT35F001 DD DSN=&FEA05,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT36F001 DD DSN=&FEA06,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT37F001 DD DSN=&FEA07,DISP=(OLD,DELETE),UNIT=SYSDA
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//GO.FT38F001 DD DSN=&EFEA08,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT39F001 DD DSN=&EFEA09,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT40F001 DD DSN=&EFEA10,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT21F001 DD DSN=&PQFEA01,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT22F001 DD DSN=&PQFEA02,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT23F001 DD DSN=&PQFEA03,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT24F001 DD DSN=&PQFEA04,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT25F001 DD DSN=&PQFEA05,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT26F001 DD DSN=&PQFEA06,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT27F001 DD DSN=&PQFEA07,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT28F001 DD DSN=&PQFEA08,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT29F001 DD DSN=&PQFEA09,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT30F001 DD DSN=&PQFEA10,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT42F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.EPIES80.DATA(EPIES),
//      DISP=SHR,UNIT=DASD
//GO.FT43F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.EPIES85.DATA(EPIES),
//      DISP=SHR,UNIT=DASD
//GO.FT44F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.EPIES90.DATA(EPIES),
//      DISP=SHR,UNIT=DASD
//GO.FT45F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.PIESQTY.DATA(QTY),
//      DISP=SHR,UNIT=DASD
//GO.FT46F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.PIESPRC.DATA(PRC),
//      DISP=SHR,UNIT=DASD
//GO.FT71F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA(FEA01),
//      DISP=SHR,UNIT=DASD
//GO.FT72F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA(FEA02),
//      DISP=SHR,UNIT=DASD
//GO.FT73F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA(FEA03),
//      DISP=SHR,UNIT=DASD
//GO.FT74F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA(FEA04),
//      DISP=SHR,UNIT=DASD
//GO.FT75F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA(FEA05),
//      DISP=SHR,UNIT=DASD
//GO.FT76F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA(FEA06),
//      DISP=SHR,UNIT=DASD
//GO.FT77F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA(FEA07),
//      DISP=SHR,UNIT=DASD
//GO.FT78F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA(FEA08),
//      DISP=SHR,UNIT=DASD
//GO.FT79F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA(FEA09),
//      DISP=SHR,UNIT=DASD
//GO.FT86F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA(FEA01),
//      DISP=SHR,UNIT=DASD
//GO.FT87F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA(FEA02),
//      DISP=SHR,UNIT=DASD
//GO.FT88F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA(FEA03),
//      DISP=SHR,UNIT=DASD
//GO.FT89F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA(FEA04),
//      DISP=SHR,UNIT=DASD
//GO.FT90F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA(FEA05),
//      DISP=SHR,UNIT=DASD
//GO.FT91F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA(FEA06),

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//          DISP=SHR,UNIT=DASD
//GO.FT92F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA{FEA07},
//          DISP=SHR,UNIT=DASD
//GO.FT93F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA{FEA08},
//          DISP=SHR,UNIT=DASD
//GO.FT94F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA{FEA09},
//          DISP=SHR,UNIT=DASD
//GO.FT95F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA{FEA10},
//          DISP=SHR,UNIT=DASD
//GO.FT80F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA{FEA10},
//          DISP=SHR,UNIT=DASD
//GO.FT96F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMPQR.DATA{FEAUS},
//          DISP=SHR,UNIT=DASD
//GO.FT81F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONY.DEMELAS.DATA{FEAUS},
//          DISP=SHR,UNIT=DASD
//GO.FT02F001 DD DSN=CN6117.LR2.MFBIGAS,
//          DISP=SHR,UNIT=DASD
//GO.FT11F001 DD DSN=CN6117.LR2.DFACEOUT.SHIFTS.DATA{CONSHIFT},
//          DISP=SHR,UNIT=DASD
//GO.FT14F001 DD DSN=CN6117.LR2.DFACEOUT.HOLDER.DATA{CONSHIFT},
//          DISP=SHR,UNIT=DASD
//GO.FT15F001 DD DSN=CN6117.LR2.DFACEOUT.RESULTS.DATA{CONSHIFT},
//          DISP=SHR,UNIT=DASD
//STPA1 EXEC PGM=IEFBR14
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA,
//          DISP=(OLD,DELETE),
//          UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA,
//          DISP=(OLD,DELETE),
//          UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES80.DATA,
//          DISP=(OLD,DELETE),
//          UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES85.DATA,
//          DISP=(OLD,DELETE),
//          UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES90.DATA,
//          DISP=(OLD,DELETE),
//          UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.PIESQTY.DATA,
//          DISP=(OLD,DELETE),
//          UNIT=DASD
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.PIESPRC.DATA,
//          DISP=(OLD,DELETE),
//          UNIT=DASD
//STPB1 EXEC PGM=IEFBR14
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA,
//          DISP=(NEW,CATLG),
//          UNIT=DASD,
//          SPACE=(TRK,(170,20,2)),
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA,

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```
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(230,30,2)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES80.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(8,4,1)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES85.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(8,4,1)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES90.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(8,4,1)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.PIESQTY.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(8,4,1)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//NAMEDD DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.PIESPRC.DATA,
//      DISP=(NEW,CATLG),
//      UNIT=DASD,
//      SPACE=(TRK,(8,4,1)),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//STPA EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EFEEA01,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA{FEA01},
//      UNIT=DASD,DISP=SHR
/*
//STPB EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EFEEA02,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA{FEA02},
//      UNIT=DASD,DISP=SHR
/*
//STPC EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EFEEA03,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
```

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=====
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA{FEA03} ,
//          UNIT=DASD,DISP=SHR
/*
//STPD EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF04,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE) ,
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA{FEA04} ,
//          UNIT=DASD,DISP=SHR
/*
//STPE EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF05,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE) ,
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA{FEA05} ,
//          UNIT=DASD,DISP=SHR
/*
//STPF EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF06,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE) ,
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA{FEA06} ,
//          UNIT=DASD,DISP=SHR
/*
//STPG EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF07,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE) ,
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA{FEA07} ,
//          UNIT=DASD,DISP=SHR
/*
//STPH EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=EF08,DISP=(NEW,PASS),UNIT=SYSDA,
//          SPACE=(TRK,(40,40),RLSE) ,
//          DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA{FEA08} ,
//          UNIT=DASD,DISP=SHR
/*
//STPI EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.VO.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
=====

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```
//SYSUT2 DD DSN=&EFEA09,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA(FEA09),
//      UNIT=DASD,DISP=SHR
/*
//STPJ EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&EFEA10,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FELAST.DATA(FEA10),
//      UNIT=DASD,DISP=SHR
/*
//STPK EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA01,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA01),
//      UNIT=DASD,DISP=SHR
/*
//STPL EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA02,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA02),
//      UNIT=DASD,DISP=SHR
/*
//STPM EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA03,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA03),
//      UNIT=DASD,DISP=SHR
/*
//STPN EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA04,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA04),
//      UNIT=DASD,DISP=SHR
/*
//STPO EXEC PGM=UNPRESS,REGION=30K
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=====
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA05,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA05),
//      UNIT=DASD,DISP=SHR
/*
//STPP EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA06,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA06),
//      UNIT=DASD,DISP=SHR
/*
//STPQ EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA07,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA07),
//      UNIT=DASD,DISP=SHR
/*
//STPR EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA08,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA08),
//      UNIT=DASD,DISP=SHR
/*
//STPS EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA09,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA09),
//      UNIT=DASD,DISP=SHR
/*
//STPT EXEC PGM=UNPRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=&PQFEA10,DISP=(NEW,PASS),UNIT=SYSDA,
//      SPACE=(TRK,(40,40),RLSE),
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.RD4OUT.VERSIONZ.FPRQTY.DATA(FEA10),
//      UNIT=DASD,DISP=SHR
=====

```

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```

/*
//STEP1 EXEC PORTGCLG,REGION=250K,PARM.FORT=(MAP,ID),PARM.LKED=XREF
//PORT.SYSIN DD DSN=CN6370.SN1.DFACE,DISP=SHR,UNIT=DASD,
// VOL=SER=FEA021
//GO.FT01F001 DD DSN=CN6117.LR2.RD4IN.CONTL.DATA(CNTLFTWO),
//      DISP=SHR,UNIT=DASD
//GO.SYSIN DD *
CNTLFTWO
CONSHIFT
CODEDATE
VERSIONZ
RUNDATE
//GO.FT08F001 DD DSN=&AUDIT,DISP=(MOD,PASS),UNIT=SYSDA
//GO.FT03F001 DD DSN=&TIMEDATE,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT09F001 DD DSN=&VLOG,
//      DISP=MOD,UNIT=SYSDA
//GO.FT10F001 DD DSN=CN6117.LR2.RD4IN.QINIT.A20PRBSE.DATA(FEA01),
//      DISP=SHR,UNIT=DASD
//GO.FT31F001 DD DSN=&EFEA01,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT32F001 DD DSN=&EFEA02,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT33F001 DD DSN=&EFEA03,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT34F001 DD DSN=&EFEA04,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT35F001 DD DSN=&EFEA05,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT36F001 DD DSN=&EFEA06,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT37F001 DD DSN=&EFEA07,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT38F001 DD DSN=&EFEA08,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT39F001 DD DSN=&EFEA09,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT40F001 DD DSN=&EFEA10,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT21F001 DD DSN=&PQFEA01,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT22F001 DD DSN=&PQFEA02,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT23F001 DD DSN=&PQFEA03,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT24F001 DD DSN=&PQFEA04,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT25F001 DD DSN=&PQFEA05,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT26F001 DD DSN=&PQFEA06,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT27F001 DD DSN=&PQFEA07,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT28F001 DD DSN=&PQFEA08,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT29F001 DD DSN=&PQFEA09,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT30F001 DD DSN=&PQFEA10,DISP=(OLD,DELETE),UNIT=SYSDA
//GO.FT42F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES80.DATA(EPIES),
//      DISP=SHR,UNIT=DASD
//GO.FT43F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES85.DATA(EPIES),
//      DISP=SHR,UNIT=DASD
//GO.FT44F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES90.DATA(EPIES),
//      DISP=SHR,UNIT=DASD
//GO.FT45F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.PIESQTY.DATA(QTY),
//      DISP=SHR,UNIT=DASD
//GO.FT46F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.PIESPRC.DATA(PRC),
//      DISP=SHR,UNIT=DASD
//GO.FT71F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA(FEA01),
//      DISP=SHR,UNIT=DASD
//GO.FT72F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA(FEA02),
//      DISP=SHR,UNIT=DASD

```



```
//GO.FT73F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA{FEA03},
//      DISP=SHR,UNIT=DASD
//GO.FT74F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA{FEA04},
//      DISP=SHR,UNIT=DASD
//GO.FT75F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA{FEA05},
//      DISP=SHR,UNIT=DASD
//GO.FT76F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA{FEA06},
//      DISP=SHR,UNIT=DASD
//GO.FT77F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA{FEA07},
//      DISP=SHR,UNIT=DASD
//GO.FT78F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA{FEA08},
//      DISP=SHR,UNIT=DASD
//GO.FT79F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA{FEA09},
//      DISP=SHR,UNIT=DASD
//GO.FT86F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA01},
//      DISP=SHR,UNIT=DASD
//GO.FT87F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA02},
//      DISP=SHR,UNIT=DASD
//GO.FT88F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA03},
//      DISP=SHR,UNIT=DASD
//GO.FT89F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA04},
//      DISP=SHR,UNIT=DASD
//GO.FT90F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA05},
//      DISP=SHR,UNIT=DASD
//GO.FT91F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA06},
//      DISP=SHR,UNIT=DASD
//GO.FT92F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA07},
//      DISP=SHR,UNIT=DASD
//GO.FT93F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA08},
//      DISP=SHR,UNIT=DASD
//GO.FT94F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA09},
//      DISP=SHR,UNIT=DASD
//GO.FT95F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEA10},
//      DISP=SHR,UNIT=DASD
//GO.FT80F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA{FEA10},
//      DISP=SHR,UNIT=DASD
//GO.FT96F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMPQR.DATA{FEAUS},
//      DISP=SHR,UNIT=DASD
//GO.FT81F001 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.DEMELAS.DATA{FEAUS},
//      DISP=SHR,UNIT=DASD
//GO.FT02F001 DD DSN=CN6117.LR2.MFBIGAS,
//      DISP=SHR,UNIT=DASD
//GO.FT11F001 DD DSN=CN6117.LR2.DFACEOUT.SHIFTS.DATA(CONSHIFT),
//      DISP=SHR,UNIT=DASD
//GO.FT14F001 DD DSN=CN6117.LR2.DFACEOUT.HOLDER.DATA(CONSHIFT),
//      DISP=SHR,UNIT=DASD
//GO.FT15F001 DD DSN=CN6117.LR2.DFACEOUT.RESULTS.DATA{CONSHIFT},
//      DISP=SHR,UNIT=DASD
//STPBKK EXEC PGM=PRESS,REGION=30K
//STEPLIB DD DSN=SYS2.WYLBUR.V0.UTIL.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=&VLOG,DISP=(OLD,DELETE),UNIT=SYSDA
```

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```
//SYSUT2 DD DSN=CN6117.LR2.DFACEOUT.LOG.DATA(VERSIONZ) ,
//      DISP=SHR,UNIT=DASD
//STEP1U EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=CN6117.LR2.EPIES.RUNDATE,
//      UNIT=DASD,DISP=(NEW,CATLG,UNCATLG) ,
//      SPACE=(TRK,(18,9)) ,
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES80.DATA(EPIES) ,
//      DISP=SHR,UNIT=DASD
//      DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES85.DATA(EPIES) ,
//      DISP=SHR,UNIT=DASD
//      DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.EPIES90.DATA(EPIES) ,
//      DISP=SHR,UNIT=DASD
//      DD DSN=&AUDIT,DISP=(OLD,PASS) ,UNIT=SYSDA
//SYSIN DD DUMMY
//STEP2U EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=CN6117.LR2.DEMPT.RUNDATE,
//      UNIT=DASD,DISP=(NEW,CATLG,UNCATLG) ,
//      SPACE=(TRK,(10,5)) ,
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.PIESQTY.DATA(QTY) ,
//      DISP=SHR,UNIT=DASD
//      DD DSN=CN6370.SN1.DFACEOUT.VERSIONZ.PIESPRC.DATA(PRC) ,
//      DISP=SHR,UNIT=DASD
//      DD DSN=&AUDIT,DISP=(OLD,PASS) ,UNIT=SYSDA
//SYSIN DD DUMMY
//STEP3U EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSUT2 DD DSN=CN6117.LR2.DEMSHIFT.RUNDATE,
//      UNIT=DASD,DISP=(NEW,CATLG,UNCATLG) ,
//      SPACE=(TRK,(10,5)) ,
//      DCB=(RECFM=FB,LRECL=133,BLKSIZE=1330)
//SYSUT1 DD DSN=CN6117.LR2.DFACEOUT.RESULTS.DATA(CONSHIFT) ,
//      DISP=SHR,UNIT=DASD
//      DD DSN=&AUDIT,DISP=(OLD,DELETE) ,UNIT=SYSDA
//SYSIN DD DUMMY
```

4. Partial List of Program Variables and Their Description

TABLE V.8: PARTIAL LIST OF RDFOR PROGRAM VARIABLES
AND THEIR DESCRIPTION

Name	Type	Size	Description
<hr/>			
AA	R	{3}	--
AB	R	{3}	--
ADFC	R	--	--
ADJ	R	{6}	--
AE	R	{14}	--
AF1	R	{14}	Intercept of fuel ratio equation for the major fuels models.
AG	R	{3}	--
AHEEA	R	{18}	--
AL	R	{3}	--
AM	R	{3}	--
AMPG	R	{18}	--
AMPGBS	R	{18}	--
AMPGTR	R	{18}	--
AR	R	{3}	--
ARPAIR	R	{18}	--
ASPEED	R	{18}	--
AT	R	{3}	--
AT1	R	{3}	--
ATRSH	R	{3}	--
AUFC	R	{7}	--
AUT	R	{3}	--
AVSPSS	R	{18}	--
BF	R	{10}	Price coefficient for the major fuels model.
BSFL	R	{18}	--
BT	R	{3}	--
BTUEFF	R	{14}	--
CFAC	R	{30}	--
COST	R	{18}	--
CXPRL	R	{18}	--
DEFL	R	{4, 18}	--
E	R	{13, 5}	--
EFF	R	{18}	--
FBTB	R	{18}	--
FELT	R	{18}	--
FPJTC	R	{18}	--
FPJTML	R	{18}	--
FPLCT	R	{18}	--
FPRFT	R	{18}	--
GAS	R	{18}	--
GNP58	R	{18}	--
GSC	R	{3, 18}	--
GTRSH	R	{4, 5}	--
TARRAY	I	{5, 10}	--

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IBM	I	{3}	--	
IBMETH	I	{30}	--	
IDMETH	I	{30}	--	
IDRUN	I	{14}	--	Run identification.
IELAS	I	{5}	--	
IEMETH	I	--	--	Indicator for method to be used in calculating elasticity. It is: = 0 for mid-point approximation, and = 1 for logarithmic approximation.
IFCM	I	--	--	
IFELAS	I	{10}	--	.TRUE., if Ith elasticity perturbation is to be done.
IFIN	I	{10}	--	
IFINDX	I	--	--	.TRUE., if TQ and TP are to be calculated using the divisia identity and .FALSE., if TQ and TP are to be calculated using the behavioral relation.
IFNHKP	I	{14}	--	
IFRS	I	{10}	--	It indicates whether a particular sector submodule needs to be called for a given type of price.
IFSIC	L	--	--	.TRUE., if industrial sector is to be done using SIC code model.
IFTR	I	{10}	--	
INYET	I	{3,10}	--	
IPARM	I	{2}	--	
IPMETH	I	--	--	Indicator for price perturbation formula. It is: = 0, for stair-step perturbation, = 1, for ramp perturbation and = 2, for actual 1974 values.
IPTURB	I	{10}	--	
IREG	I	--	--	Number of regions being dealt with.
ISEC	I	--	--	Specifies the sector. It is: = 1 residential sector, = 2 commercial sector and = 3, for aggregate industrial sector.
IYBNCH	I	--	--	Last data year; benchmark year.
JRWSSE	R	{18}	--	
JOAF	R	18)	--	
KELAS	I	{13,5}	--	
KFRB	R	{18}	--	
KLAS	I	{10}	--	
KP	I	--	--	Location of prices in PRC array.
KQ	I	--	--	Location of quantities in QTY array.
KSEC	I	{6}	--	Vector of location of either residential sector major fuels in quantity array, or aggregate industrial sector major fuels in quantity array, or commercial sector major fuels in quantity array.

LF	R	(14)	Lag coefficient for the major fuels model.
LODFAC	R	(18)	--
LSUM	I	(13)	--
MPG	R	(18)	--
MPGC	R	(18)	--
NATDS	R	--	--
NATJF	R	--	--
NATLG	R	--	--
NATRF	R	--	--
NDATE	R	(2)	Date of run.
NGC	R	--	--
NGU	R	--	--
NGUL	R	--	--
NHWYGS	R	(18)	--
NK	I	--	Number of fuel ratio equations.
NMFUEL	I	(43)	number of fuels represented. these are distinguished by fuel type and sector: e.g., natural gas for indystry, natural gas for households, and natural gas are all counted as seperate fuels. (See NMFUEL in RDPOR List of Variables for Fuel Number, Name and Description).
NMREG	I	--	--
NMSEC	I	(5,3)	--
NPCR	R	(18)	Number of fuel prices represented.
NPOP	R	(18)	--
NPTURB	I	(18,10)	number of different price perturbations for elasticity calculations.

<u>Ipturb</u>	<u>Fuel Group</u>	<u>Members</u>
1	Gasoline	15
2	Electricity	1, 5, 9, 31
3	Natural Gas	2, 6, 10, 32
4	Distillate	3, 7, 11, 16, 33
5	Residual	8, 12, 18, 34
6	Liquid Gas	4, 13, 35
7	Jet Fuel	17
8	Coal	14, 38
9	Oil	3, 4, 7, 8, 11, 13, 15, 16, 17, 18, 37
10	All Fuels	

NUNDFL	I	(18)	-
NUNGAS	I	(18)	--
NUNJTF	I	(18)	--
NUNLPG	I	(18)	--
NUNRFL	I	(18)	--
NXF	I	--	Number of variables in XF.

NXT	I	--	Number of variables in XT.
NYR	I	{18}	--
NYRR	I	{18}	--
OA	R	{9}	--
OB	R	{9}	--
OE	R	{9}	--
OF	R	{9}	--
OG	R	{9}	--
OL	R	{9}	--
OM	R	{9}	--
OMEGA	R	{18}	--
OR	R	{9}	--
OT	R	--	--
PO	R	{6, 9}	--
PARMF	R	{14, 5}	--
PARMT	R	{3, 5}	--
PBASE	R	{18, 18}	--
PCR	R	{18}	--
PCTDF	R	{18}	--
PDF	R	{18}	--
PDFL	R	{18}	--
PDFW	R	{18}	--
PGAS	R	{18}	--
PMAIR	R	{18}	--
PNBASE	R	{18, 18}	--
PNRC	R	{18, 18}	--
POP	R	{18}	--
PRC	R	{18, 18}	Matrix of fuel prices by year (for a given region).
PRF	R	{18}	--
PRFL	R	{18}	--
PRMNA	R	{9}	--
PRMNB	R	{9}	--
PRMNG	R	{9}	--
PRMNL	R	{9}	--
QBASE	R	{43, 18}	Matrix of unperturbed prices.
QO	I	{42, 9}	--
QTY	R	{43, 18}	Matrix of fuel quantities by year (for a given region).
QTYN	R	{43, 3}	--
QTYPRE	R	{43, 3}	--
QTYPRN	R	{43, 3}	--
RA	R	{18}	--
RATIO	R	{18}	--
REV	R	--	Total sectoral energy expenditure.
RLDF	R	{18}	--
RU	R	{18}	--
SHADJ	R	{18, 5}	--
SUTCOM	R	{18}	--
TBA	R	{5}	--
TBB	R	{5}	--
TBE	R	{5}	--

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TBF	R	{5}	--
TBG	R	{5}	--
TBL	R	{5}	--
TBM	R	{5}	--
TBR	R	{5}	--
TBT	R	{5}	--
THEAT	R	{18}	--
TIME	R	{4}	Time of run.
TMRL	R	{18}	--
TP	R	{4, 18}	Total price index by sector by year.
TPJFT	R	{18}	--
TQ	R	{13, 18}	Total quantity index by sector by year.
TQFHAT	R	{3, 3}	--
TQL	R	{3, 18}	--
TRBSDF	R	{18}	--
TRFL	R	{18}	--
VO	R	{42, 9}	--
VA	R	{9, 18}	--
VM	R	{18}	--
VMBUS	R	{18}	--
VMTRK	R	{18}	--
W	R	{6}	Value weight for each fuel (share of energy budget).
WK	R	{6}	--
X58D44	R	{18}	--
XF	R	{5, 18}	Array of nonprice exogenous variables for fuel ratio equations.
XT	R	{5, 18}	Array of nonprice exogenous variables for total equation.
YCAP	R	{18}	--
YCAPL1	R	{10}	--
YCAPL2	R	{10}	--
YP58N	R	{18}	--
YPER	R	{18}	--
YPRM	R	{18}	--

TABLE V.9: PARTIAL LIST OF DFACE PROGRAM VARIABLES
AND THEIR DESCRIPTION

Name	Type	Size	Description
IDRUN	I	{26}	Run identification.
TELAS	I	{5}	--
IEMETH	I	--	Indicator for method to be used in calculating elasticity. It is: = 0, for mid-point approximation, and = 1, for logarithmic approximation.
IFCM	I	--	--
IFELAS	I	{10}	.TRUE., if Ith elasticity perturbation is to be done.
IFIN	I	{10}	--
IFSIC	L	--	.TRUE., if industrial sector is to be done using SIC code model.
IFTR	I	{10}	--
INYET	I	{3,10}	--
IPARM	I	{2}	--
IPMETH	I	--	Indicator for price perturbation formula. It is: = 0, for stair-step perturbation, = 1, for ramp perturbation and = 2, for actual 1974 values.
IY1PRJ	I	--	First projection year (IYBNCH + 1, in general)
IYBNCH	I	--	Last data year; benchmark year.
IYR	I	{3}	Three pies years for which pies reports are produced (generally 80, 85 and 90).
KREG	I	--	Number of regions (CENCUS VS. FEA).
NDATE	I	{2}	Date of run.
NMFUEL	I	{43}	number of fuels represented. these are distinguished by fuel type and sector: e.g., natural gas for indystry, natural gas for households, and natural gas are all counted as seperate fuels.

Ifuel Name Description

1	ELRS	Residential Electricity
2	NGRS	Residential Natural Gas
3	DFRS	Residential Distillate Fuel
4	LGRS	Residential Liquid Gases
5	ELCM	Commercial Electricity
6	NGCM	Commercial Natural Gas
7	DFCM	Commercial Distillate Fuel
8	RFCM	Commercial Residual Fuel
9	ELIN	Industrial Electricity

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10	NGIN	Industrial Natural Gas
11	DFIN	Industrial Distillate Fuel Oil
12	RFIN	Industrial Residual Fuel Oil
13	LGIN	Industrial Liquid Gases
14	CLIN	Industrial Coal
15	GSTR	Transportation Gasoline
16	DFTR	Transportation Distillate Fuel Oil
17	JFTR	Transportation Jet Fuel
18	RFTR	Transportation Residual Fuel Oil
19	ELTR	Transportation Electricity
20	NGRM	Raw Materials Natural Gas
21	LGCM	Commercial Liquid Gases
22	LGTR	Transportation Liquid Gases
23	LGFS	Feedstocks Liquid Gases
24	LGRM	Raw Materials Liquid Gases
25	OLRM	Raw Materails Oil
26	PCIN	Industrial Petroleum Coke
27	ASCM	Commercial Asphalt
28	CLHC	Household/commercial Coal
29	CLTR	Transportation Coal
30	MCIN	Industrial Metallurgical Coal
31	ELTT	Total Electricity
32	NGTT	Total Natural Gass
33	DFTT	Total Distillate Fuel Oil
34	RFTT	Total Residual Fuel Oil
35	LGTT	Total Liquid Gases
36	OPTT	Total Other Petroleum Products
37	OLTT	Total Oil
38	CLTT	Total Coal
39	TTRS	Residential All Fuels
40	TTCM	Commercial All Fuels
41	TTIN	Industrial All Fuels
42	TTTR	Transportation All Fuels
43	TTTT	Total All Fuels
PRC	R	(18,18) Matrix of fuel prices by year (for a given region).
QTY	R	(43,18) Matrix of fuel quantities by year (for a given region).
TIME	R	-- Time of run.

5. RDFGR Source Code Listing

```

C=====R 1
C                                     R 2
C FUNCTION: THIS PROGRAM (RDFOR) USES PRICES, MACRO R 3
C VARIABLES AND ECONOMETRIC PARAMETERS TO R 4
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C 2 NGRS RESIDENTIAL NATURAL GAS R 34
C 3 DFRS RESIDENTIAL DISTILLATE FUEL R 35
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C 6 NGCM COMMERCIAL NATURAL GAS R 38
C 7 DFCM COMMERCIAL DISTILLATE FUEL R 39
C 8 RFCM COMMERCIAL RESIDUAL FUEL R 40
C 9 ELIN INDUSTRIAL ELECTRICITY R 41
C 10 NGIN INDUSTRIAL NATURAL GAS R 42
C 11 DFIN INDUSTRIAL DISTILLATE FUEL OIL R 43
C 12 RFIN INDUSTRIAL RESIDUAL FUEL OIL R 44
C 13 LGIN INDUSTRIAL LIQUID GASES R 45
C 14 CLIN INDUSTRIAL COAL R 46
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C	TQ	=TOTAL QUANTITY INDEX BY SECTOR BY YEAR.		R	104

C	TP	=TOTAL PRICE INDEX BY SECTOR BY YEAR.	R 105
C	IDRUN	=RUN IDENTIFICATION.	R 106
C	NDATE	=DATE OF RUN.	R 107
C	TIME	=TIME OF RUN.	R 108
C	IREG	=NUMBER OF REGION BEING DEALT WITH	R 109
C	IFSIC	=.TRUE. IF INDUSTRIAL SECTOR IS TO BE DONE USING SIC	R 110
C		CODE MODEL.	R 111
C	IFINDX	=.TRUE. IF TQ AND TP ARE TO BE CALCULATED USING THE	R 112
C		DIVISIA INDEX INDENTITY.	R 113
C		=.FALSE. IF TQ AND TP ARE TO BE CALCULATED USING THE	R 114
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C	IFELAS(I)	=.TRUE. IF ITH ELASTICITY PERTURBATION IS TO BE DONE.	R 116
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C		=1 FOR LOGARITHMIC APPROXIMATION	R 120
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C		=0 FOR STAIR-STEP PERTURBATION	R 122
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	1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18),		R 145
	2 TQ(13,18),TP(4,18),TQFHAT(3,3),PNRC(18,18),PNBASE(18,18)		R 146
	COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18),		R 147
	1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18),		R 148
	2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18),		R 149
	3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18)		R 150
	COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIC,IFINDX,		R 151
	1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30),		R 152
	2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14)		R 153
	LOGICAL IFSIC,IFINDX		R 154
	COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14),		R 155
	1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9)		R 156
	COMMON/PARMTR/ANFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3),		R 157
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1	AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5),	R 158
2	TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9),	R 159
3	OF(9),OL(9),OG(9),OM(9),ATRS(5),GTRS(4,5),SHADJ(18,5)	R 160

C	THESE ARE VECTORS OF THE ECONOMETRICALLY ESTIMATED PARAMETERS	R 161
C	FOR EACH SECTOR, SUITABLY ORDERED.	R 162
C		R 163
C		R 164

	COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18),	R 165
1	YPRM(18),YPER(18)	R 166
	COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18),	R 167
1	CXPRL(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18),	R 168
2	SUTCOM(18),FPJTML(18),JOAF(18),NPOP(18),GNP58(18),KFRB(18),	R 169
3	YP58N(18)	R 170

C	THESE ARE THE MACRO VARIABLES USED IN THIS PROGRAM. ALL	R 171
C	CALCULATIONS IN THIS PROGRAM ARE DONE IN REAL 1975 DOLLARS;	R 172
C	THE PRICE DEFLATORS ARE USED TO PROVIDE SPECIAL REPORTS	R 173
C	IF NEEDED.	R 174
C		R 175
C		R 176

	COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3)	R 177
	COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9)	R 178
	COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10)	R 179

C	SOLCOM CONTAINS VARIOUS ARRAYS WHICH ARE USED TO MOVE DATA	R 180
C	AND CONTROL INFORMATION AROUND BETWEEN THE MAJOR SECTOR	R 181
C	SUBROUTINES, THE INDEXING ROUTINE, AND THE MAJOR FUELS	R 182
C	SOLUTION ROUTINE. LAGCOM IS USED TO STORE INFORMATION	R 183
C	USED TO COMPUTE THE SCHILLER LAGS, WHICH ARE COMPUTED IN	R 184
C	THE INDEXING ROUTINE AND USED IN THE SIC-DETAILED INDUSTRIAL	R 185
C	MODEL. PTBCOM IS USED TO STORE VARIOUS INTEGER LISTS WHICH	R 186
C	THE ELASTICITY ROUTINE AND THE PRICE PERTURBATION ROUTINE	R 187
C	USE.	R 188
C		R 189
C		R 190

	COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3)	R 191
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C	OUTCOM HOLDS ARRAYS WHICH HAVE ALL THE RELEVANT SECTORAL,	R 192
C	REGIONAL AND FUEL NAMES.	R 193
C		R 194
C		R 195

	CALL OSICLK (2HGR,NDATE(1),2HDC,TIME(1))	R 196
--	--	-------

C	READ IN INFORMATION FROM PROGRAM CONTROL FILE, STORE	R 197
C	IN /PGMCOM/.	R 198
C		R 199
C		R 200

	DIMENSION IPARM(2)	R 201
	READ (8,80) IFELAS,IPMETH,IEMETH,IFSIC,IFINDX,IPARM,IYBNCH,IBMETH,	R 202
1	IDMETH,IFNHKP	R 203
	REWIND 8	R 204
	READ (5,85) IDRUN	R 205

C	CALL SUBROUTINE INPUT TO READ IN MACRO DATA, PARAMETERS,	R 206
C	PRICES, AND HISTORICAL QUANTITIES FOR REGION IREG. STORE	R 207
C	IN /MACRO/, /PARAM/, AND /PQCOM/.	R 208
C		R 209
C		R 210

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DO 75 IREG=1,10                                R 211
CALL INPUT                                      R 212
JDEBUG=IREG+70                                R 213
JTRDBG=IREG+85                                R 214
JPROTY=IREG+40                                R 215
JELAST=IREG+10                                R 216
WRITE (6,90) NMREG,IDRUN,NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,IEMETR 217
1H,IFELAS,IFSIC,IPARM,IBMETH,IDMETH,IFNHKP    R 218
WRITE (JDEBUG,90) NMREG,IDRUN,NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,R 219
1IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH,IFNHKP R 220
WRITE (JTRDBG,90) NMREG,IDRUN,NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,R 221
1IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH,IFNHKP R 222
WRITE (JPROTY,90) NMREG,IDRUN,NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,R 223
1IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH,IFNHKP R 224
WRITE (JELAST,90) NMREG,IDRUN,NDATE,TIME(1),TIME(2),IYBNCH,IPMETH,R 225
1IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH,IFNHKP R 226
C                                              R 227
C      SET UP LOOP FOR ELASTICITY CALCULATIONS. R 228
C                                              R 229
DO 70 ILOOP=1,11                                R 230
ILAS=ILOOP-1                                    R 231
C                                              R 232
C      IF ILAS IS ZERO, THEN GO AHEAD WITH QUANTITY CALCULATIONS. R 233
C      IF IFELAS(ILAS) IS TRUE, THEN GO AHEAD WITH PRICE PERTURBATIONS R 234
C      AND QUANTITY CALCULATIONS FOR PERTURBATION TYPE ILAS. IF R 235
C      FALSE, THEN GO TO NEXT VALUE OF ILAS. R 236
C                                              R 237
IF (ILAS.EQ.0) GO TO 5                            R 238
IF (IFELAS(ILAS).EQ.0) GO TO 70                  R 239
C                                              R 240
C      CALL SUBROUTINE PCHNG TO CALCULATE PERTURBED PRICES. R 241
C      PERTURBED PRICES GO INTO ARRAY PRC; UNPERTURBED PRICES R 242
C      ARE FOUND IN ARRAY PBASE. IF ILAS IS ZERO, NO PRICE R 243
C      PERTURBATIONS ARE DONE, AND SUBROUTINE PCHNG WILL SIMPLY R 244
C      COPY PBASE DIRECTLY TO PRC. R 245
C                                              R 246
5 CALL PCHNG (ILAS)                                R 247
C                                              R 248
C      COPY QBASE TO QTY IF ILAS IS GREATER THAN ZERO. SOME R 249
C      PARTS OF QTY WILL BE OVER-WRITTEN BY NEW QUANTITIES R 250
C      CALCULATED FROM PERTURBED PRICES. R 251
C                                              R 252
IF (ILAS.EQ.0) GO TO 15                            R 253
DO 10 K=1,43                                    R 254
DO 10 NT=1,18                                    R 255
10 QTY(K,NT)=QBASE(K,NT)                        R 256
C                                              R 257
C      CALCULATE RESIDENTIAL QUANTITIES BASED ON PRICE ARRAY, PRC. R 258
C      PUT INTO ARRAY QTY. IF IFRS(ILAS) IS ZERO, SKIP THIS R 259
C      STEP. R 260
C                                              R 261
IF (IFRS(ILAS).EQ.0) GO TO 20                    R 262
15 CALL QRES (ILAS)                                R 263
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C		R 264
C	CALCULATE COMMERCIAL QUANTITIES, SIMILAR TO RESIDENTIAL.	R 265
C		R 266
	IF (ILAS.EQ.0) GO TO 25	R 267
	20 IF (IFCM(ILAS).EQ.0) GO TO 30	R 268
	25 CALL QCOMM (ILAS)	R 269
C		R 270
C	CALCULATE TRANSPORTATION QUANTITIES, SIMILAR TO RESIDENTIAL.	R 271
C		R 272
	IF (ILAS.EQ.0) GO TO 35	R 273
	30 IF (IFTR(ILAS).EQ.0) GO TO 40	R 274
	35 CALL QTRANS (ILAS,IPARM)	R 275
C		R 276
C	CALCULATE INDUSTRIAL QUANTITIES. IF IFSIC IS TRUE, USE	R 277
C	THE INDUSTRIAL SUBSECTOR MODEL. OTHERWISE, USE THE	R 278
C	AGGREGATE INDUSTRIAL MODEL.	R 279
C		R 280
	IF (ILAS.EQ.0) GO TO 45	R 281
	40 IF (IFIN(ILAS).EQ.0) GO TO 50	R 282
	45 IF (.NOT.IFSIC) CALL QIAGG (ILAS)	R 283
C		R 284
C	FORM APPROPRIATE AGGREGATES ACROSS FUELS AND SECTORS.	R 285
C		R 286
	50 IY1PRJ=IYBNCH+1	R 287
	DO 55 NT=IY1PRJ,18	R 288
	DO 55 K=1,13	R 289
	K30=K+30	R 290
	55 QTY(K30,NT)=SUM(K,NT)	R 291
C		R 292
C	IF ILAS IS ZERO, COPY THE NEW QUANTITIES IN QTY INTO	R 293
C	QBASE, AND WRITE OUT THE ENERGY BALANCE REPORT AND	R 294
C	THE POR TABLES. OTHERWISE, CALCULATE THE ELASTICITIES	R 295
C	AND WRITE OUT TO THE ELASTICITY REPORT.	R 296
C		R 297
	IF (ILAS.GT.0) GO TO 65	R 298
	DO 60 K=1,43	R 299
	DO 60 NT=1,18	R 300
	60 QBASE(K,NT)=QTY(K,NT)	R 301
	CALL REPORT (ILAS)	R 302
	GO TO 70	R 303
	65 CALL ELAST (ILAS)	R 304
	CALL REPORT (ILAS)	R 305
C		R 306
C	END OF MAIN ELASTICITY LOOP .	R 307
C		R 308
	70 CONTINUE	R 309
	75 CONTINUE	R 310
	STOP	R 311
C		R 312
	80 FORMAT (/1X,10(1X,I1)//1X,I2//1X,I2//1X,L1//1X,L1//1X,2(1X,I1)//1X	R 313
	1,I1//30(1X,I1)//30(1X,I1)//14(1X,I1))	R 314
	85 FORMAT (2X,14A4)	R 315
	90 FORMAT (1H1, 45HREGIONAL DEMAND FORECASTING MODEL FOR REGION ,A4//R	R 316

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11X, 10HTHIS IS A ,14A4, 13H RUN, DATE = ,2A4, 9H, TIME = ,A2, 1HR 317
2: ,A2//1X, 13HBENCH YEAR = ,I2/1X, 20HPRICE PATH METHOD = ,I2/1X, 2R 318
30HELASTICITY METHOD = ,I2/1X, 20HPRICE PERTURBATIONS , 47HDONE - (R 319
4ZERO MEANS PERTURBATION WAS SKIPPED) - ,10I2/1X, 48HWAS INDUSTRY-SR 320
5SPECIFIC INDUSTRIAL MODEL USED ? - ,L1/1X, 60HTRANS MODEL PARAMETERR 321
6S - (AUTO MPG STD & AIR LOAD FACTOR) - ,2I2/1X, 25HFUEL INTERCEPT R 322
7METHODS - ,30I2/1X, 14HFUEL INDEXING , 10HMETHODS - ,30I2/1X, 25HGR 323
8AS REG NORMALIZATIONS - ,14I2) R 324
END R 325

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C=====R 326
C                                     R 327
C FUNCTION:      THIS SUBROUTINE (INPUT) READS ALL THE RELEVANT      R 328
C                DATA FILES FOR A PARTICULAR REGION (EXCLUDING      R 329
C                THE CONTROL PARAMETER FILE, WHICH IS READ IN      R 330
C                THE MAIN ROUTINE).      R 331
C                                     R 332
C STATUS          SUBROUTINE      R 333
C                                     R 334
C WRITTEN BY:      LEW RUBIN      R 335
C                                     R 336
C WRITTEN ON:      AUGUST 12, 1976      R 337
C                                     R 338
C LANGUAGE:        FORTRAN IV      R 339
C                                     R 340
C REQ. ROUTINES:  NONE      R 341
C                                     R 342
C SYNERGY LABEL:  P30      R 343
C                                     R 344
C LAST UPDATE:    OCTOBER 8, 1977      R 345
C                                     R 346
C=====R 347
SUBROUTINE INPUT      R 348
COMMON/POCOM/PTY (43,18),PRC (18,18),CFAC (30),QTYPRE (43,3),      R 349
1 QTYN (43,3),QTYPRN (43,3),QBASE (43,18),PBASE (18,18),      R 350
2 TQ (13,18),TP (4,18),TQPHAT (3,3),PNRC (18,18),PNBASE (18,18)      R 351
COMMON/MACRO/POP (18),YCAP (18),VA (9,18),DEFL (4,18),GSC (3,18),      R 352
1 YPRM (18),YPER (18)      R 353
COMMON/PARAM/AT (3),BT (3),LT (3),PARMT (3,5),AF (14),BF (14),      R 354
1 LF (14),PARMF (14,5),PRMNA (9),PRMNB (9),PRMNG (9),PRMNL (9)      R 355
COMMON/VLITRN/AMPG (18),VM (18),GAS (18),COST (18),THETA (18),      R 356
1 OMEGA (18),PCR (18),TRBSGS (18),TRBSDF (18),AMPGBS (18),RATIO (18),      R 357
2 VMTRK (18),VMBUS (18),TMRL (18),RLDF (18),TPJFT (18),PMAIR (18),      R 358
3 FPJTC (18),FBTB (18),FPLGT (18),FPRFT (18)      R 359
COMMON/RHSTRN/RU (18),JRWSSE (18),AHEEA (18),ASPEED (18),EFF (18),      R 360
1 CXPRL (18),ARPAIR (18),LODFAC (18),X5ED44 (18),RA (18),AVSPBS (18),      R 361
2 SUTCOM (18),FPJTML (18),JQAF (18),NPOP (18),GNP58 (18),KFRB (18),      R 362
3 YP58N (18)      R 363
COMMON/PARMTR/AUFC (7),ADFC (6),AUT (3),AR (3),AA (3),AB (3),AE (3),      R 364
1 AUF (3),AL (3),AG (3),AM (3),TBT (5),TBR (5),TBA (5),TBB (5),TBE (5),      R 365
2 TBF (5),TBL (5),TBG (5),TBM (5),OT (9),OR (9),OA (9),OB (9),OE (9),      R 366
3 OF (9),OL (9),OG (9),OM (9),ATRSH (5),GTRSH (4,5),SHADJ (18,5)      R 367
COMMON/OUTCOM/NMFUEL (43),NMREG, NMSEC (5,3)      R 368
COMMON/PGMCOM/IDRUN (14),NDATE (2),TIME (4),IREG,IFSIC,IFINDX,      R 369
1 IFELAS (10),IEMETH,IPMETH,IYBNCH,IBMETH (30),IDMETH (30),      R 370
2 NYR (18),NYRR (18),IFRS (10),IFCM (10),IFIN (10),IFTR (10),IFNHKP (14)      R 371
COMMON/SOLCOM/XT (5,18),XF (5,18),NXT,NXF,NK,KSEC (6),AT1 (3),IBM (3)      R 372
COMMON/LAGCOM/Q0 (42,9),P0 (6,9),V0 (42,9)      R 373
COMMON/PTBCOM/KLAS (10),KELAS (13,5),IELAS (5),IARRAY (5,10)      R 374
REAL LT,LF,JRWSSE,LODFAC,JQAF,NPOP,KFRB      R 375
DIMENSION IPARAM (3)      R 376

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THE FIRST FILE TO BE READ IS THE MACRO FILE, WHICH CONTAINS ALL
MACRO VARIABLES FOR BOTH THE MAJOR FUELS AND THE TRANSPORTATION
FUELS.

DATA IPARAM/4,4,6/

DIMENSION YCAPL1(10),YCAPL2(10)

LAGGED VALUES FOR PERMANENT INCOME CONSTRUCTION FOR 72 AND 71.

DATA YCAPL1/6.04,6.64,5.80,4.87,5.95,4.89,5.51,5.30,6.30,5.59/

DATA YCAPL2/5.85,6.49,5.50,4.56,5.71,4.64,5.20,4.93,6.08,5.36/

READ (1,15) ((POP(NT),YCAP(NT),(VA(K,NT),K=1,9),(GSC(K,NT),K=1,3)),
1,NT=1,18)

DO 10 NT=1,18

NYRR(NT)=1972+NT

NYR(NT)=72+NT

YPER(NT)=YCAP(NT)*POP(NT)

IF (NT.LT.3) GO TO 5

YPRM(NT)=YCAP(NT)*(4/7.)+YCAP(NT-1)*(2/7.)+YCAP(NT-2)*(1/7.)

GO TO 10

5 YPRM(2)=YCAP(2)*(4/7.)+YCAP(1)*(2/7.)+YCAPL1(IREG)*(1/7.)

YPRM(1)=YCAP(1)*(4/7.)+YCAPL1(IREG)*(2/7.)+YCAPL2(IREG)*(1/7.)

10 CONTINUE

READ (1,20) ((RU(NT),JRWSSE(NT),AHEFA(NT),ASPEED(NT),EFF(NT),CXPRLR
1(NT),ARPAIR(NT),LODFAC(NT),NPOP(NT)),NT=1,18)

READ (1,25) ((X58D44(NT),RA(NT),AVSPBS(NT),SUTCOM(NT),FPJTML(NT),JR
1QAF(NT),YP58N(NT),GNP58(NT),KFRB(NT)),NT=1,18)

NEXT THE PRICE FILE, WHICH IS A PRODUCT OF THE PRICE PRE-
PROCESSOR, IS READ. FOUR RELEVANT VARIETIES OF DEFLATORS, I.E.
CPI, WPI, PCE AND GNP WILL ALSO BE READ FROM THIS FILE.

READ (2,30) ((PBASE(K,NT),K=1,8),NT=1,18)

READ (2,35) ((PBASE(K,NT),K=9,18),NT=1,18)

READ (2,40) ((PNBASE(K,NT),K=1,8),NT=1,18)

READ (2,45) ((PNBASE(K,NT),K=9,18),NT=1,18)

NEXT THE FILE OF RELEVANT PARAMETERS WILL BE READ. THIS
FILE CONSISTS OF MAJOR FUEL REGIONAL PARAMETERS, NATIONAL
TRANSPORTATION PARAMETERS, AND SHARING PARAMETERS FOR THE
TRANSPORTATION FUELS. MINOR FUELS PARAMETERS WILL ALSO BE
READ. FOR THE MAJOR FUELS, THE A'S ARE INTERCEPTS, THE B'S
ARE PRICE COEFFICIENTS, AND THE L'S ARE LAG TERM COEFFICIENTS.
THR PARM ARRAYS, BOTH FOR THE INDICES AND FOR THE FUELS,
REPRESENT OTHER RIGHT-HAND-SIDE VARIABLES, WITH THE FOLLOWING
ORDER: INCOME IS FIRST, FOLLOWED BY GAS SHARE, POPULATION,
HEATING AND COOLING DEGREE-DAYS. WHEN A VARIABLE IS MEANING-
LESS IN A PARTICULAR CONTEXT, SUCH AS OFTEN OCCURS IN THE
FUEL-SPECIFIC EQUATIONS, ITS COEFFICIENT IS ZERO.

READ (3,50) (NMSEC(1,L),L=1,3),AT(1),BT(1),LT(1),{PARMT(1,L),L=1,5
1},{AF(IK),BF(IK),LF(IK),{PARMP(IK,L),L=1,5)},IK=1,4)

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=====
READ (3,55) (NMSEC(2,L),L=1,3),AT(2),BT(2),LT(2),{PARMT(2,L),L=1,5R 430
1},{(AF(IK),BF(IK),LF(IK),{PARMF(IK,L),L=1,5}),IK=5,8) R 431
READ (3,60) (NMSEC(3,L),L=1,3),AT(3),BT(3),LT(3),{PARMT(3,L),L=1,5R 432
1},{(AF(IK),BF(IK),LF(IK),{PARMF(IK,L),L=1,5}),IK=9,14) R 433
READ (3,70) (NMSEC(5,L),L=1,3) R 434
READ (3,65) (ATRSH(I),I=1,5),{(GTRSH(K,I),I=1,5),K=1,4) R 435
READ (3,80) (NMSEC(4,L),L=1,3),NMREG R 436
READ (3,75) {(AA(I),AB(I),AL(I),AE(I),AUT(I),AG(I),AR(I),AUF(I),AMR 437
1(I),I=1,3),{(TBA(I),TBB(I),TBL(I),TBE(I),TBT(I),TBG(I),TBR(I),TBFR 438
2(I),TBM(I)),I=1,5),{(OA(I),OB(I),OL(I),OE(I),OT(I),OG(I),OR(I),OF(R 439
3I),OM(I)),I=1,9) R 440
READ (3,85) (AUF(I),I=1,7),{ADFC(I),I=1,6),{(SHADJ(NT,I),I=1,5),NR 441
1T=1,18) R 442
READ (3,90) (PRMNA(K),K=1,9),{PRMNB(K),K=1,9),{PRMNG(K),K=1,9),{PRR 443
1MNL(K),K=1,9) R 444
R 445

```

C
 C NEXT THE INITIAL VALUES ARE READ, BOTH FOR THE PARTICULAR
 C REGION BEING DONE AND FOR THE NATIONAL TOTAL. THE LATTER
 C ARRAY IS NEEDED FOR INTERCEPT COMPUTATION IN SOME CASES.
 C INITIAL TRANSPORTATION VALUES ARE ALSO READ, AS ARE FUEL
 C NAMES AND CONVERSION FACTORS.
 C

```

READ (4,95) {(NMFUEL(K),CFAC(K),{(QTY(K,NT),QTYPRE(K,NT)),NT=1,3)) R 452
1,K=1,30),{(NMFUEL(K),{(QTY(K,NT),QTYPRE(K,NT)),NT=1,3)},K=31,43) R 453
READ (4,100) {(TOFHAT(I,NT),NT=1,3),I=1,3) R 454
READ (4,105) {(QTYN(K,NT),QTYPRN(K,NT)),NT=1,3),K=1,43) R 455
READ (4,110) {AMPG(NT),NT=1,3),{VM(NT),NT=1,3),{GAS(NT),NT=1,3),{CR 456
1OST(NT),NT=1,3),{THETA(NT),NT=1,3),{OMEGA(NT),NT=1,3),{PCR(NT),NT=R 457
21,3),{TRBSGS(NT),NT=1,3),{TRBSDF(NT),NT=1,3),{AMPGBS(NT),NT=1,3),{R 458
3RATIO(NT),NT=1,3),{VMTRK(NT),NT=1,3),{VMBUS(NT),NT=1,3),{TMRL(NT),R 459
4NT=1,3),{RLDF(NT),NT=1,3),{TPJFT(NT),NT=1,3),{PMAIR(NT),NT=1,3),{FR 460
5PJTC(NT),NT=1,3),{FBTB(NT),NT=1,3),{FPLGT(NT),NT=1,3),{FPRFT(NT),NR 461
6T=1,3) R 462
RETURN R 463

```

C
 15 FORMAT (17(/),17(5X,14F9.0/),5X,14F9.0) R 465
 20 FORMAT (3(/),17(6X,9F14.4/),6X,9F14.4) R 466
 25 FORMAT (3(/),17(6X,9F14.4/),6X,9F14.4,23(/)) R 467
 30 FORMAT (25(/),17(10X,8F10.3/),10X,8F10.3) R 468
 35 FORMAT (2(/),17(10X,10F10.3/),10X,10F10.3) R 469
 40 FORMAT (4(/),17(10X,8F10.3/),10X,8F10.3) R 470
 45 FORMAT (2(/),17(10X,10F10.3/),10X,10F10.3,42(/)) R 471
 50 FORMAT (10(/),10X,3A4,4(/),4(10X,8F10.5/),10X,8F10.5) R 472
 55 FORMAT (1(/),10X,3A4,4(/),4(10X,8F10.5/),10X,8F10.5) R 473
 60 FORMAT (1(/),10X,3A4,4(/),6(10X,8F10.5/),10X,8F10.5) R 474
 65 FORMAT (/4(10X,5F10.4/),10X,5F10.4) R 475
 70 FORMAT (/72X,3A4) R 476
 75 FORMAT (3(/),16(10X,9F10.5/),10X,9F10.5) R 477
 80 FORMAT (10X,3A4,9X,A4) R 478
 85 FORMAT (3(/),22X,5F10.2,2F10.5/21X,6F10.2/17(27X,5F10.5/),27X,5F10R 479
 1.5) R 480
 90 FORMAT (8(/),10X,9F10.3/10X,9F10.3/10X,9F10.3/10X,9F10.3) R 481
 95 FORMAT (29(/),30(6X,A4,F10.3,20X,6F15.1/),12(6X,A4,30X,6F15.1/),6XR 482

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1,A4,30X,6F15.1)	R 483
100 FORMAT (2(/),40X,3(F21.1,9X)/40X,3(F21.1,9X)/40X,3(F21.1,9X))	R 484
105 FORMAT (3(/),42(40X,6F15.1/),40X,6F15.1)	R 485
110 FORMAT (3(/),20(40X,F15.4,15X,F15.4,15X,F15.4/),40X,F15.4,15X,F15.4,15X,F15.4)	R 486
14,15X,F15.4)	R 487
END	R 488

```

C=====R 489
C                                           R 490
C FUNCTION:      THIS SUBROUTINE (PCHNG) CALCULATES PERTURBED   R 491
C                PRICES.                                         R 492
C                                           R 493
C                                           R 494
C WRITTEN BY:    LEW RUBIN                                       R 495
C                                           R 496
C WRITTEN ON:    AUGUST 12, 1976                                 R 497
C                                           R 498
C LANGUAGE:      FORTRAN IV                                       R 499
C                                           R 500
C REQ. ROUTINES: NONE                                             R 501
C                                           R 502
C SYNERGY LABEL: P30                                             R 503
C                                           R 504
C LAST UPDATE:   OCTOBER 8, 1977                                  R 505
C                                           R 506
C=====R 507
SUBROUTINE PCHNG (ILAS)                                           R 508
COMMON/PQCOM/ QTY (43,18) ,PRC (18,18) ,CFAC (30) ,QTYPE (43,3) , R 509
1 QTYN (43,3) ,QTYPRN (43,3) ,QBASE (43,18) ,PBASE (18,18) ,      R 510
2 TQ (13,18) ,TP (4,18) ,TQFHAT (3,3) ,PNRC (18,18) ,PNBASE (18,18) R 511
COMMON/MACRO/POP (18) ,YCAP (18) ,VA (9,18) ,DEFL (4,18) ,GSC (3,18) , R 512
1 YPRM (18) ,YPER (18)                                           R 513
COMMON/PARAM/AT (3) ,BT (3) ,LT (3) ,PARMT (3,5) ,AF (14) ,BF (14) , R 514
1 LF (14) ,PARMF (14,5) ,PRMNA (9) ,PRMNB (9) ,PRMNG (9) ,PRMNL (9) R 515
COMMON/VLITRN/AMPG (18) ,VM (18) ,GAS (18) ,COST (18) ,THETA (18) , R 516
1 OMEGA (18) ,PCR (18) ,TRBSGS (18) ,TRBSDF (18) ,AMPGBS (18) ,RATIO (18) , R 517
2 VMTRK (18) ,VMBUS (18) ,TMRL (18) ,RLDF (18) ,TPJFT (18) ,PMAIR (18) , R 518
3 FPJTC (18) ,FBTB (18) ,FPLGT (18) ,FPRFT (18)                 R 519
COMMON/RHSTRN/RU (18) ,JRWSSE (18) ,AHEEA (18) ,ASPEED (18) ,EFF (18) , R 520
1 CXPRL (18) ,ARPAIR (18) ,LODFAC (18) ,X58D44 (18) ,RA (18) ,AVSPBS (18) , R 521
2 SUTCOM (18) ,FPJTML (18) ,JQAF (18) ,NPOP (18) ,GNP58 (18) ,KFRB (18) , R 522
3 YP58N (18)                                                     R 523
COMMON/PARMTR/AUFC (7) ,ADFC (6) ,AUT (3) ,AR (3) ,AA (3) ,AB (3) ,AE (3) , R 524
1 AUF (3) ,AL (3) ,AG (3) ,AM (3) ,TBT (5) ,TBR (5) ,TBA (5) ,TBB (5) ,TBE (5) , R 525
2 TBF (5) ,TBL (5) ,TBG (5) ,TBM (5) ,OT (9) ,OR (9) ,OA (9) ,OB (9) ,OE (9) , R 526
3 OF (9) ,OL (9) ,OG (9) ,OM (9) ,ATRSH (5) ,GTRSH (4,5) ,SHADJ (18,5) R 527
COMMON/OUTCOM/NMFUEL (43) ,NMREG ,NMSEC (5,3)                   R 528
COMMON/PGMCOM/IDRUN (14) ,NDATE (2) ,TIME (4) ,IREG ,IFSIC ,IFINDX , R 529
1 IFELAS (10) ,IEMETH ,IPMETH ,IYBNCH ,IBMETH (30) ,IDMETH (30) , R 530
2 NYR (18) ,NYRR (18) ,IFRS (10) ,IFCM (10) ,IFIN (10) ,IFTR (10) ,IFNHKP (14) R 531
COMMON/SOLCOM/XT (5,18) ,XF (5,18) ,NXT ,NXF ,NK ,KSEC (6) ,AT1 (3) ,IBM (3) R 532
COMMON/LAGCOM/QO (42,9) ,PO (6,9) ,VO (42,9)                   R 533
COMMON/PTBCOM/KLAS (10) ,KELAS (13,5) ,IELAS (5) ,IARRAY (5,10) R 534
DIMENSION IPTURB (10) ,NPTURB (18,10)                          R 535
DATA IPTURB/1,3,3,4,3,2,1,1,11,18/                             R 536
DATA NPTURB/15,17*0,1,5,9,15*0,2,6,10,15*0,3,7,11,16,14*0, R 537
1 8,12,18,15*0,4,13,16*0,17,17*0,14,17*0,3,4,7,8,11,12,13, R 538
2 15,16,17,18,7*0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18/ R 539

```

DO 5 K=1,18	R 540
DO 5 NT=1,18	R 541
PNRC(K,NT)=PNBASE(K,NT)	R 542
5 PRC(K,NT)=PBASE(K,NT)	R 543
IF (ILAS.EQ.0) GO TO 35	R 544
WRITE (6,40) NMFUEL(KLAS(ILAS))	R 545
IPT=IPTURB(ILAS)	R 546
IY1PRJ=IYBNCH+1	R 547
RANGE=18.-IYBNCH	R 548
RANGER=8.-IYBNCH	R 549
DO 30 NT=IY1PRJ,18	R 550
DO 30 K=1,IPT	R 551
IF (IPMETH-1) 10,15,20	R 552
10 PRC(NPTURB(K,ILAS),NT)=1.1*PRC(NPTURB(K,ILAS),NT)	R 553
PNRC(NPTURB(K,ILAS),NT)=1.1*PNRC(NPTURB(K,ILAS),NT)	R 554
GO TO 30	R 555
15 PRC(NPTURB(K,ILAS),NT)=1.1**((NT-IYBNCH)/RANGE)*PRC(NPTURB(K,ILAS),NT)	R 556
PNRC(NPTURB(K,ILAS),NT)=1.1**((NT-IYBNCH)/RANGE)*PNRC(NPTURB(K,ILAS),NT)	R 557
GO TO 30	R 558
20 IF (NT.GT.8) GO TO 25	R 559
PNRC(NPTURB(K,ILAS),NT)=1.1**((NT-IYBNCH)/RANGER)*PNRC(NPTURB(K,ILAS),NT)	R 560
PRC(NPTURB(K,ILAS),NT)=1.1**((NT-IYBNCH)/RANGER)*PRC(NPTURB(K,ILAS),NT)	R 561
GO TO 30	R 562
25 PRC(NPTURB(K,ILAS),NT)=PRC(NPTURB(K,ILAS),8)	R 563
PNRC(NPTURB(K,ILAS),NT)=PNRC(NPTURB(K,ILAS),8)	R 564
30 CONTINUE	R 565
35 RETURN	R 566
C	
40 FORMAT (1X, 8HPERTURB ,A4, 1HP)	R 567
END	R 568
	R 569
	R 570
	R 571
	R 572
	R 573


```

C=====R 574
C                                           R 575
C FUNCTION:      THIS SUBROUTINE (QRES) CONTROLS THE SOLUTION      R 576
C                OF THE RESIDENTIAL SECTOR MAJOR FUEL DEMANDS.      R 577
C                                           R 578
C                                           R 579
C WRITTEN BY:    DAVID KNAPP                                         R 580
C                                           R 581
C WRITTEN ON:    AUGUST 12, 1976                                     R 582
C                                           R 583
C LANGUAGE:      FORTRAN IV                                          R 584
C                                           R 585
C REQ. ROUTINES: SOLSEC                                              R 586
C                                           R 587
C SYNERGY LABEL: P30                                                R 588
C                                           R 589
C LAST UPDATE:   OCTOBER 8, 1977                                     R 590
C                                           R 591
C NOMENCLATURE:                                           R 592
C                                           R 593
C                XT          = ARRAY OF NONPRICE EXOGENOUS VARIABLES FORR 594
C                               TOTAL EQUATION.                      R 595
C                XF          = ARRAY OF NONPRICE EXOGENOUS VARIABLES FORR 596
C                               FUEL RATIO EQUATIONS.                R 597
C                NXT         = NUMBER OF VARIABLES IN XT.            R 598
C                NXF         = NUMBER OF VARIABLES IN XF.            R 599
C                NK          = NUMBER OF FUEL RATIO EQUATIONS.        R 600
C                KSEC        = VECTOR OF LOCATIONS OF RESIDENTIAL SECTO R 601
C                               MAJOR FUELS IN QUANTITY ARRAY.        R 602
C                ELECTRICITY = QTY(1,NT)                             R 603
C                NATURAL GAS = QTY(2,NT)                             R 604
C                DISTILLATES = QTY(3,NT)                             R 605
C                LIQUID GASES= QTY(4,NT)                             R 606
C                                           R 607
C REMARKS:                                           R 608
C                                           R 609
C                ARRAYS ARE INITIALIZED FOR THE RESIDENTIAL SECTOR TOTAL R 610
C                ENERGY DEMAND EQUATION AND THE FUEL RATIO EQUATIONS.  R 611
C                                           R 612
C=====R 613
C                SUBROUTINE QRES (ILAS)                             R 614
C                COMMON/PQCOM/QTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3), R 615
C                1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18), R 616
C                2 TQ(13,18),TP(4,18),TQFHAT(3,3),PNRC(18,18),PNBASE(18,18) R 617
C                COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18), R 618
C                1 YPRM(18),YPER(18) R 619
C                COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),DF(14), R 620
C                1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9) R 621
C                COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18), R 622
C                1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18), R 623
C                2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18), R 624
C                3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18) R 625

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COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18),
1 CXPRL(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18),
2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18),
3 YP58N(18)
COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3),
1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5),
2 TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9),
3 OF(9),OL(9),OG(9),OM(9),ATRSH(5),GTRSH(4,5),SHADJ(18,5)
COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3)
COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIK,IFINDX,
1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30),
2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14)
COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3)
COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9)
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10)
REAL LT,LF,JRWSSE,LODFAC,JQAF,NPOP,KFRB

```

TIME LOOP FOR INITIALIZATION.

DO 5 NT=1,18

INITIALIZE TOTAL ENERGY EQUATION MACRO ARRAY.

```

XT(1,NT)=YPRM(NT)
XT(2,NT)=GSC(1,NT)
XT(3,NT)=POP(NT)
IF (NT.EQ.1) XT(4,NT)=YPRM(NT)
IF (NT.GT.1) XT(4,NT)=YPRM(NT-1)

```

INITIALIZE FUEL RATIO EQUATIONS MACRO ARRAY

NOTE: NOT ALL VARIABLES IN THE ARRAY WILL BE USED
IN EVERY EQUATION. THE INCLUSION IS CONTROL-
LED BY THE COEFFICIENT VALUE. VARIABLES TO
BE EXCLUDED HAVE ZERO COEFFICIENTS.

```

XF(1,NT)=YCAP(NT)
XF(2,NT)=GSC(1,NT)

```

5 CONTINUE

PARMT(1,4)=(-1.)*PARMT(1,1)*LT(1)

SET CONTROL PARAMETERS AND CALL SOLUTION ROUTINE.

```

NXT=4
NXF=2
IBM(1)=2
NK=4
K1=1
K2=K1+NK-1
DO 10 K=K1,K2
10 KSEC(K-K1+1)=K
WRITE (6,15)
CALL SOLSEC (ILAS,1)
RETURN

```

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C

15 FORMAT (1X, 18HRESIDENTIAL SECTOR)
END

R 679
R 680
R 681

```

C=====R 682
C                                           R 683
C FUNCTION:      THIS SUBROUTINE (QCOMM) CONTROLS THE SOLUTION    R 684
C                OF THE COMMERCIAL SECTOR MAJOR FUEL DEMANDS.      R 685
C                                           R 686
C                                           R 687
C WRITTEN BY:    DAVID KNAPP                                       R 688
C                                           R 689
C WRITTEN ON:    AUGUST 12, 1976                                    R 690
C                                           R 691
C LANGUAGE:      FORTRAN IV                                        R 692
C                                           R 693
C REQ. ROUTINES: SOLSEC                                           R 694
C                                           R 695
C SYNERGY LABEL: P30                                              R 696
C                                           R 697
C LAST UPDATE:   OCTOBER 8, 1977                                    R 698
C                                           R 699
C NOMENCLATURE:                                              R 700
C                                           R 701
C                XT        = ARRAY OF NONPRICE EXOGENOUS VARIABLES FORR 702
C                           TOTAL EQUATION.                        R 703
C                XF        = ARRAY OF NONPRICE EXOGENOUS VARIABLES FORR 704
C                           FUEL RATIO EQUATIONS.                 R 705
C                NXT       = NUMBER OF VARIABLES IN XT.           R 706
C                NXF       = NUMBER OF VARIABLES IN XF.           R 707
C                NK        = NUMBER OF FUEL RATIO EQUATIONS.       R 708
C                KSEC      = VECTOR OF LOCATIONS OF COMMERCIAL SECTOR R 709
C                           MAJOR FUELS IN QUANTITY ARRAY.        R 710
C                ELECTRICITY = QTY(5,NT)                           R 711
C                NATURAL GAS = QTY(6,NT)                           R 712
C                DISTILLATES = QTY(7,NT)                           R 713
C                RESIDUAL OIL= QTY(8,NT)                           R 714
C                                           R 715
C REMARKS:                                              R 716
C                                           R 717
C                ARRAYS ARE INITIALIZED FOR THE COMMERCIAL SECTOR, TOTAL R 718
C                ENERGY DEMAND EQUATION AND THE FUEL RATIO EQUATIONS. R 719
C                                           R 720
C=====R 721
C                SUBROUTINE QCOMM(ILAS)                           R 722
C                COMMON/PQCOM/QTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3), R 723
C                1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18), R 724
C                2 TQ(13,18),TP(4,18),TOPHAT(3,3),PNRC(18,18),PNBASE(18,18) R 725
C                COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEPL(4,18),GSC(3,18), R 726
C                1 YPRM(18),YPER(18)                               R 727
C                COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14), R 728
C                1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9) R 729
C                COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18), R 730
C                1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18), R 731
C                2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18), R 732
C                3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18)         R 733

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Detailed Explanation and Documentation of the Software Package

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COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18),
1 CXPRL(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18),
2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18),
3 YP58N(18)
COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3),
1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5),
2 TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9),
3 OF(9),OL(9),OG(9),OM(9),ATRSH(5),GTRSH(4,5),SHADJ(18,5)
COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3)
COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIC,IFINDX,
1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30),
2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14)
COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3)
COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9)
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10)
REAL LT,LF,JRWSSE,LODFAC,JQAF,NPOP,KFRB

```

TIME LOOP FOR INITIALIZATION.

DO 5 NT=1,18

INITIALIZE TOTAL ENERGY EQUATION MACRO ARRAY.

```

XT(1,NT)=YPRM(NT)
XT(2,NT)=GSC(2,NT)
XT(3,NT)=POP(NT)
IF (NT.EQ.1) XT(4,NT)=YPRM(NT)
IF (NT.GT.1) XT(4,NT)=YPRM(NT-1)

```

INITIALIZE FUEL RATIO EQUATIONS MACRO ARRAY.

NOTE: NOT ALL VARIABLES IN THE ARRAY WILL BE USED
IN EVERY EQUATION. THE INCLUSION IS CONTROL-
LED BY THE COEFFICIENT VALUE. VARIABLES TO
BE EXCLUDED HAVE ZERO COEFFICIENTS.

```

XF(1,NT)=YCAP(NT)
XF(2,NT)=GSC(2,NT)

```

5 CONTINUE

PARMT(2,4)=(-1.)*PARMT(2,1)*LT(2)

SET CONTROL PARAMETERS AND CALL SOLUTION ROUTINE.

```

IF (QTY(21,IYBNCH-1).LE.0.0) GO TO 10
PRMNA(2)=QTY(21,IYBNCH)/(PRC(4,IYBNCH)**PRMNB(2)*(IYBNCH+13.))
1 **PRMNG(2)*QTY(21,IYBNCH-1)**PRMNL(2))
10 IF (QTY(28,IYBNCH-1).LE.0.0) GO TO 15
PRMNA(8)=QTY(28,IYBNCH)/(PRC(14,IYBNCH)**PRMNB(8)*
1 EXP((IYBNCH+13.)*PRMNG(8))*QTY(28,IYBNCH-1)**PRMNL(8))
15 IY1PRJ=IYBNCH+1
DO 20 NT=IY1PRJ,18
QTY(21,NT)=0.0

```

<pre> 20 QTY(28,NT)=0.0 DO 30 NT=IY1PRJ,18 IF (QTY(21,NT-1).LE.0.0) GO TO 25 QTY(21,NT)=PRMNA(2)*PRC(4,NT)**PRMNB(2)*(NT+13.):**PRMNG(2)*QTY(21, 1NT-1)**PRMNL(2) 25 IF (QTY(28,NT-1).LE.0.0) GO TO 30 QTY(28,NT)=PRMNA(8)*PRC(14,NT)**PRMNB(8)*EXP((NT+13.)* 1 PRMNG(8))*QTY(28,NT-1)**PRMNL(8) 30 CONTINUE NXT=4 NXF=2 IBM(2)=2 NK=4 K1=5 K2=K1+NK-1 DO 35 K=K1,K2 35 KSEC(K-K1+1)=K WRITE (6,40) CALL SOLSEC (ILAS,2) RETURN C 40 FORMAT (1X,17HCOMMERCIAL SECTOR) END </pre>	<pre> R 785 R 786 R 787 R 788 R 789 R 790 R 791 R 792 R 793 R 794 R 795 R 796 R 797 R 798 R 799 R 800 R 801 R 802 R 803 R 804 R 805 R 806 R 807 </pre>
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=====R 808
C=====R 809
C
C FUNCTION:      THIS SUBROUTINE (QIAGG) CONTROLS THE SOLUTION      R 810
C                OF THE AGGREGATE INDUSTRIAL SECTOR MAJOR FUEL      R 811
C                DEMANDS.                                           R 812
C                R 813
C WRITTEN BY:    DAVID KNAPP                                         R 814
C                R 815
C WRITTEN ON:    AUGUST 12, 1976                                     R 816
C                R 817
C LANGUAGE:      FORTRAN IV                                          R 818
C                R 819
C REQ. ROUTINES: SOLSEC                                              R 820
C                R 821
C SYNERGY LABEL: P30                                                R 822
C                R 823
C LAST UPDATE:   OCTOBER 8, 1977                                     R 824
C                R 825
C NOMENCLATURE:  R 826
C                R 827
C                XT          =ARRAY OF NONPRICE EXOGENOUS VARIABLES FOR R 828
C                               TOTAL EQUATION.                       R 829
C                XF          =ARRAY OF NONPRICE EXOGENOUS VARIABLES FOR R 830
C                               FUEL RATIO EQUATIONS.                 R 831
C                NXT         =NUMBER OF VARIABLES IN XT.              R 832
C                NXF         =NUMBER OF VARIABLES IN XF.              R 833
C                NK          =NUMBER OF FUEL RATIO EQUATIONS.         R 834
C                KSEC        =VECTOR OF LOCATIONS OF AGGREGATE        R 835
C                               INDUSTRIAL SECTOR MAJOR FUELS IN QUANTITY R 836
C                               ARRAY.                                R 837
C                ELECTRICITY =QTY(1,NT)                               R 838
C                NATURAL GAS =QTY(2,NT)                               R 839
C                DISTILLATES =QTY(3,NT)                               R 840
C                LIQUID GASES=QTY(4,NT)                               R 841
C                R 842
C REMARKS:       R 843
C                R 844
C                ARRAYS ARE INITIALIZED FOR THE AGGREGATE INDUSTRIAL SECTOR, R 845
C                TOTAL ENERGY DEMAND EQUATION AND THE FUEL RATIO EQUATIONS. R 846
C                R 847
C=====R 848
SUBROUTINE QIAGG(ILAS)                                              R 849
COMMON/PQCOM/QTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3),      R 850
1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18),          R 851
2 TQ(13,18),TP(4,18),TQPHAT(3,3),PNRC(18,18),PNBASE(18,18)    R 852
COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18),   R 853
1 YPRM(18),YPER(18)                                              R 854
COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14),      R 855
1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9)      R 856
COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18),      R 857
1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18), R 858
2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18),  R 859
3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18)                      R 860
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Detailed Explanation and Documentation of the Software Package

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COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18), R 861
1 CXPRL(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18), R 862
2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18), R 863
3 YP58N(18) R 864
COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3), R 865
1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5), R 866
2 TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9), R 867
3 OF(9),OL(9),OG(9),OM(9),ATRSH(5),GTRSH(4,5),SHADJ(18,5) R 868
COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3) R 869
COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIC,IFINDX, R 870
1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30), R 871
2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14) R 872
COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3) R 873
COMMON/LAGCOM/Q0(42,9),P0(6,9),V0(42,9) R 874
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10) R 875
REAL LT,LF,JRWSSE,LODFAC,JQAF,NPOP,KFRB R 876
C R 877
C TIME LOOP FOR INITIALIZATION. R 878
C R 879
DO 5 NT=1,18 R 880
C R 881
C INITIALIZE TOTAL ENERGY EQUATION MACRO ARRAY. R 882
C R 883
XT(1,NT)=1.0 R 884
XT(2,NT)=GSC(3,NT) R 885
XT(3,NT)=VA(9,NT) R 886
C R 887
C INITIALIZE FUEL RATIO EQUATIONS MACRO ARRAY. R 888
C NOTE: NOT ALL VARIABLES IN THE ARRAY WILL BE USED R 889
C IN EVERY EQUATION. THE INCLUSION IS CONTROL- R 890
C LED BY THE COEFFICIENT VALUE. VARIABLES TO R 891
C BE EXCLUDED HAVE ZERO COEFFICIENTS. R 892
C R 893
XF(1,NT)=1.0 R 894
XF(2,NT)=GSC(3,NT) R 895
5 CONTINUE R 896
C R 897
C SET CONTROL PARAMETERS AND CALL SOLUTION ROUTINE. R 898
C R 899
IF (QTY(20,IYBNCH-1).LE.0.0) GO TO 10 R 900
PRMNA(1)=QTY(20,IYBNCH)/(PRC(10,IYBNCH)**PRMNB(1)*VA(3,IYBNCH) R 901
1 **PRMNG(1)*QTY(20,IYBNCH-1)**PRMNL(1)) R 902
10 IF (QTY(23,IYBNCH-1).LE.0.0) GO TO 15 R 903
PRMNA(3)=QTY(23,IYBNCH)/(PRC(13,IYBNCH)**PRMNB(3)*VA(4,IYBNCH) R 904
1 **PRMNG(3)*QTY(23,IYBNCH-1)**PRMNL(3)) R 905
15 IF (QTY(24,IYBNCH-1).LE.0.0) GO TO 20 R 906
PRMNA(4)=QTY(24,IYBNCH)/(PRC(13,IYBNCH)**PRMNB(4)*(IYBNCH+13.) R 907
1 **PRMNG(4)*QTY(24,IYBNCH-1)**PRMNL(4)) R 908
20 IF (QTY(25,IYBNCH-1).LE.0.0) GO TO 25 R 909
PRMNA(5)=QTY(25,IYBNCH)/(PRC(13,IYBNCH)**PRMNB(5)* R 910
1 EXP((IYBNCH+13.)*PRMNG(5))*QTY(25,IYBNCH-1)**PRMNL(5)) R 911
25 IF (QTY(26,IYBNCH-1).LE.0.0) GO TO 30 R 912
PRMNA(6)=QTY(26,IYBNCH)/(PRC(13,IYBNCH)**PRMNB(6)*VA(6,IYBNCH) R 913
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Detailed Explanation and Documentation of the Software Package


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1  **PRMNG(6)*QTY(26,IYBNCH-1)**PRMNL(6) R 914
30 IF (QTY(30,IYBNCH-1).LE.0.0) GO TO 35 R 915
    PRMNA(9)=QTY(30,IYBNCH)/(PRC(14,IYBNCH)**PRMNB(9)*VA(6,IYBNCH) R 916
1  **PRMNG(9)*QTY(30,IYBNCH-1)**PRMNL(9) R 917
35 IY1PRJ=IYBNCH+1 R 918
    DO 40 NT=IY1PRJ,18 R 919
        QTY(20,NT)=0.0 R 920
        QTY(23,NT)=0.0 R 921
        QTY(24,NT)=0.0 R 922
        QTY(25,NT)=0.0 R 923
        QTY(26,NT)=0.0 R 924
40 QTY(30,NT)=0.0 R 925
    DO 70 NT=IY1PRJ,18 R 926
        IF (QTY(20,NT-1).LE.0.0.OR.VA(3,NT).LE.0.0) GO TO 45 R 927
        QTY(20,NT)=PRMNA(1)*PRC(10,NT)**PRMNB(1)*VA(3,NT)**PRMNG(1)*QTY(20, R 928
        1,NT-1)**PRMNL(1) R 929
45 IF (QTY(23,NT-1).LE.0.0.OR.VA(4,NT).LE.0.0) GO TO 50 R 930
        QTY(23,NT)=PRMNA(3)*PRC(13,NT)**PRMNB(3)*VA(4,NT)**PRMNG(3)*QTY(23, R 931
        1,NT-1)**PRMNL(3) R 932
50 IF (QTY(24,NT-1).LE.0.0.OR.VA(4,NT).LE.0.0) GO TO 55 R 933
        QTY(24,NT)=PRMNA(4)*PRC(13,NT)**PRMNB(4)*(NT+13.):**PRMNG(4)*QTY(24, R 934
        1,NT-1)**PRMNL(4) R 935
55 IF (QTY(25,NT-1).LE.0.0.OR.VA(4,NT).LE.0.0) GO TO 60 R 936
        QTY(25,NT)=PRMNA(5)*PRC(13,NT)**PRMNB(5)*EXP((NT+13.))* R 937
        1 PRMNG(5))*QTY(25,NT-1)**PRMNL(5) R 938
60 IF (QTY(26,NT-1).LE.0.0.OR.VA(6,NT).LE.0.0) GO TO 65 R 939
        QTY(26,NT)=PRMNA(6)*PRC(13,NT)**PRMNB(6)*VA(6,NT)**PRMNG(6)*QTY(26, R 940
        1,NT-1)**PRMNL(6) R 941
65 IF (QTY(30,NT-1).LE.0.0.OR.VA(6,NT).LE.0.0) GO TO 70 R 942
        QTY(30,NT)=PRMNA(9)*PRC(14,NT)**PRMNB(9)*VA(6,NT)**PRMNG(9)*QTY(30, R 943
        1,NT-1)**PRMNL(9) R 944
70 CONTINUE R 945
    DO 75 NT=1,18 R 946
75 QTY(26,NT)=0.0 R 947
    NXT=3 R 948
    NXF=2 R 949
    IBM(3)=2 R 950
    NK=6 R 951
    K1=9 R 952
    K2=K1+NK-1 R 953
    DO 80 K=K1,K2 R 954
80 KSEC(K-K1+1)=K R 955
    WRITE (6,85) R 956
    CALL SOLSEC (ILAS,3) R 957
    RETURN R 958
C R 959
85 FORMAT (1X, 27HAGGREGATE INDUSTRIAL SECTOR) R 960
    END R 961
=====

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C=====R 962
C                                           R 963
C FUNCTION:      THIS SUBROUTINE (SOLSEC) SOLVES THE FUEL      R 964
C                RATIO EQUATIONS FOR THE MAJOR FUELS MODELS    R 965
C                FOR RESIDENTIAL SECTOR, COMMERCIAL SECTOR AND  R 966
C                AGGREGATE INDUSTRIAL SECTOR.                  R 967
C                                           R 968
C WRITTEN BY:     DAVID KNAPP AND LEW RUBIN                     R 969
C                                           R 970
C WRITTEN ON:     AUGUST 12, 1976                               R 971
C                                           R 972
C LANGUAGE:       FORTRAN IV                                    R 973
C                                           R 974
C REQ. ROUTINES:  TQHAT                                         R 975
C                                           R 976
C SYNERGY LABEL:  P30                                           R 977
C                                           R 978
C LAST UPDATE:    OCTOBER 8, 1977                               R 979
C                                           R 980
C NOMENCLATURE:   R 981
C                                           R 982
C                ISEC =1  RESIDENTIAL SECTOR                    R 983
C                ISEC =2  COMMERCIAL SECTOR                     R 984
C                ISEC =3  AGGREGATE INDUSTRIAL SECTOR           R 985
C                NK      =NUMBER OF FUELS IN THE SECTOR          R 986
C                KSEC    =LOCATOR ARRAY FOR FUEL LOCATIONS IN MAIN R 987
C                        QUANTITY ARRAY                          R 988
C                AF1     =EQUATION INTERCEPT                   R 989
C                BF      =PRICE COEFFICIENT                      R 990
C                LF      =LAG COEFFICIENT                        R 991
C                PARAMF=COEFFICIENTS OF OTHER EXOGENOUS VARIABLES R 992
C                                           R 993
C REMARKS:        R 994
C                                           R 995
C                PRICE AND QUANTITY INDICES ARE OBTAINED THROUGH FUNCTION R 996
C                CALLS TO TQF AND TPF. OTHER EXOGENOUS VARIABLES ARE TAKEN R 997
C
C                FROM ARRAY XF(IX,NT) WHICH IS FILLED BY THE SPECIFIC SECTOR R 998
C                CALLING ROUTINES QRES, QCOMM, AND QIAGG. A DEBUGGING RE- R 999
C                PORT IS PRODUCED ON UNIT 81 WITH ALL VALUES OF EXOGENOUS R1000
C                AND ENDOGENOUS VARIABLES AS WELL AS THE VALUE WEIGHTS USED R1001
C                IN THE INDEX CONSTRUCTION AND PARAMETER VALUES FOR EACH R1002
C                FUEL RATIO EQUATION.                               R1003
C                                           R1004
C=====R1005
C                SUBROUTINE SOLSEC(TLAS,ISEC)                    R1006
C                COMMON/PQCOM/QTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3), R1007
C                1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18), R1008
C                2 TQ(13,18),TP(4,18),TQFHAT(3,3),PNRC(18,18),PNBASE(18,18) R1009
C                COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18), R1010
C                1 YPRM(18),YPER(18)                             R1011
C                COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14), R1012
C                1 LF(14),PARAMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9) R1013
C=====
C                Detailed Explanation and Documentation of the Software Package

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COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18),      R1014
1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18),  R1015
2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18),    R1016
3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18)                        R1017
COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18),   R1018
1 CXPRL(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18),  R1019
2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18),   R1020
3 YP58N(18)                                                      R1021
COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3),    R1022
1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5),  R1023
2 TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9),    R1024
3 OF(9),OL(9),OG(9),OM(9),ATRSH(5),GTRSH(4,5),SHADJ(18,5)       R1025
COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3)                        R1026
COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSTIC,IFINDX,     R1027
1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30),         R1028
2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14) R1029
COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3) R1030
COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9)                        R1031
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10)       R1032
REAL LT,LF,JRWSSE,LODFAC,JQAF,NPOP,KFRB                        R1033
DIMENSION W(6),WK(6,18),INYET(3,10),AF1(14)                    R1034
REAL NGC,NGU,NGUL                                              R1035
DIMENSION ADJ(6),BTUEFF(14)                                    R1036
DATA BTUEFF/1.96,1.00,.86,.98,1.92,1.00,.92,.81,              R1037
1 1.59,1.00,1.03,1.08,1.03,.84/                                R1038
DATA INYET/30*0/                                              R1039
JDEBUG=IREG+70                                                  R1040
IYBM1=IYBNCH-1                                                  R1041
IYBM2=IYBNCH-2                                                  R1042
IY1PRJ=IYBNCH+1                                                R1043
IF (IYBNCH.LE.2) IYBM2=IYBNCH-1                                R1044
IF (INYET(ISEC,IREG).GT.0) GO TO 25                             R1045
INYET(ISEC,IREG)=1                                              R1046
TOTYL=0.                                                         R1047
C                                                                    R1048
C                                                                    R1049
C                                                                    R1050
MASTER FUEL LOOP.                                              R1051
DO 20 K=1,NK                                                    R1052
KK=KSEC(K)                                                       R1053
IF (K.EQ.2) GO TO 5                                              R1054
TOTYL=TOTYL+QTY(KK,IYBNCH)                                       R1055
5 KSC=KK+3                                                       R1056
IF (IBMETH(KSC).EQ.1) GO TO 15                                    R1057
IF (IBMETH(KSC).EQ.3) INIT=IYBNCH                                R1058
IF (IBMETH(KSC).EQ.2) INIT=IBM(ISEC)                             R1059
INIT1=INIT-1                                                     R1060
AF1(KK)=(PRC(KK,INIT)/TPF(ISEC,INIT,W))*BF(KK)                  R1061
DO 10 IX=1,NXF                                                    R1062
10 AF1(KK)=AF1(KK)*XF(IX,INIT)**PARMF(KK,IX)                    R1063
IF (IBMETH(KSC).EQ.2) AF1(KK)=QTYPRE(KK,INIT)/(AF1(KK)*         R1064
1 (QTY(KK,INIT1)/TQF(ISEC,INIT1))*LF(KK)*                       R1065
2 TQF(ISEC,INIT))

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=====
IF (IBMETH(KSC).EQ.3) AF1(KK)=QTY(KK,INIT)/(AF1(KK)*
1 (QTY(KK,INIT1)/TQF(ISEC,INIT1))**LF(KK)*
2 TQF(ISEC,INIT))
GO TO 20
15 AF1(KK)=AF(KK)
20 CONTINUE
25 DO 50 NT=IY1PRJ,18
    NT1=NT-1
    KN=KSEC(2)
    KM=KSEC(1)
    IF (IDMETH(KSC).EQ.1) NGU=AF1(KN)*(PRC(KN,NT)/
1 TPF(ISEC,NT,W))**BF(KN)*(QTY(KN,NT1)/TQF(ISEC,NT1))**LF(KN)*TQHAT
2(ISEC,NT)
    IF (IDMETH(KSC).EQ.2) NGU=AF1(KN)*(PRC(KN,NT)/
1 TPF(ISEC,NT,W))**BF(KN)*(QTY(KN,NT1)/TQHAT(ISEC,NT1))**LF(KN)*TQHR
2AT(ISEC,NT)
    IF (IDMETH(KSC).EQ.1) NGC=AF1(KN)*(PRC(KN,NT)/
1 TPF(ISEC,NT,W))**BF(KN)*(QTY(KN,NT1)/TQF(ISEC,NT1))**LF(KN)*TQHAT
2(ISEC,NT)
    IF (IDMETH(KSC).EQ.2) NGC=AF1(KN)*(PRC(KN,NT)/
1 TPF(ISEC,NT,W))**BF(KN)*(QTY(KN,NT1)/TQHAT(ISEC,NT1))**LF(KN)*TQHR
2AT(ISEC,NT)
    DO 30 IX=1,NXF
    IF (IX.EQ.2) NIN=IYBNCH
    IF (IX.NE.2) NIN=NT
    NGU=NGU*XF(IX,NT)**PARMF(KN,IX)
30 NGC=NGC*XF(IX,NIN)**PARMF(KN,IX)
    DO 40 K=1,NK
    KK=KSEC(K)
    KSC=KK+3
    KTM=ISEC+38
    ADJ(K)=(QTY(KK,NT1)/TQTYL)*(NGU-NGC)*IFNHKP(KK)
    IF (IDMETH(KSC).EQ.1) QTY(KK,NT)=AF1(KK)*(PRC(KK,NT)/
1 TPF(ISEC,NT,W))**BF(KK)*(QTY(KK,NT1)/TQF(ISEC,NT1))**LF(KK)*TQHAT
2(ISEC,NT)
    IF (IDMETH(KSC).EQ.2) QTY(KK,NT)=AF1(KK)*(PRC(KK,NT)/
1 TPF(ISEC,NT,W))**BF(KK)*(QTY(KK,NT1)/TQHAT(ISEC,NT1))**LF(KK)*TQHR
2AT(ISEC,NT)
    IF (NXF.EQ.0) GO TO 40
    DO 35 IX=1,NXF
    IF (XF(IX,NT).EQ.0.) GO TO 35
    NIN=NT
    IF ((IX.EQ.2).AND.((IFNHKP(KM)).EQ.1).AND.(KK.EQ.KN)) NIN=IYBNCH
    QTY(KK,NT)=QTY(KK,NT)*XF(IX,NIN)**PARMF(KK,IX)
35 CONTINUE
    QTY(KK,NT)=QTY(KK,NT)+ADJ(K)/BTUEFF(KK)
40 CONTINUE
    TQTYL=0.
    DO 45 K=1,NK
    IF (K.EQ.2) GO TO 45
    TQTYL=TQTYL+QTY(KSEC(K),NT)
45 CONTINUE
50 CONTINUE
=====

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Detailed Explanation and Documentation of the Software Package

C		R1119
C	WRITE OUT DEBUGGING REPORT ON UNIT 81.	R1120
C		R1121
	IF (ILAS.EQ.0) GO TO 55	R1122
	WRITE (JDEBUG,100) (NMSEC (ISEC,M),M=1,3),NMFUEL(KLAS (ILAS))	R1123
	GO TO 60	R1124
	55 WRITE (JDEBUG,105) (NMSEC (ISEC,M),M=1,3)	R1125
	60 DO 65 NT=1,18	R1126
	NT1=NT-1	R1127
	IF (NT.LE.1) NT1=NT	R1128
	TPP=TPF (ISEC,NT,W)	R1129
	TQHATT=TQHAT (ISEC,NT)	R1130
	IF (IDMETH (ISEC).EQ.1) TQHATL=TQF (ISEC,NT1)/XT (3,NT1)	R1131
	IF (IDMETH (ISEC).EQ.2) TQHATL=TQHAT (ISEC,NT1)/XT (3,NT1)	R1132
	65 WRITE (JDEBUG,110) NYRR (NT),TQHATT,AT1 (ISEC),TPP,BT (ISEC),TQHATL,LR	R1133
	1T (ISEC), (XT (IX,NT),PARMT (ISEC,IX),IX=1,NXT)	R1134
	DO 80 K=1,NK	R1135
	KK=KSEC (K)	R1136
	KSC=KK+3	R1137
	IF (ILAS.EQ.0) GO TO 70	R1138
	WRITE (JDEBUG,115) NMFUEL (KK),NMFUEL (KLAS (ILAS))	R1139
	GO TO 75	R1140
	70 WRITE (JDEBUG,120) NMFUEL (KK)	R1141
	75 DO 80 NT=1,18	R1142
	NT1=NT-1	R1143
	IF (NT.LE.1) NT1=NT	R1144
	TQHATT=TQHAT (ISEC,NT)	R1145
	RPT=PRC (KK,NT)/TPF (ISEC,NT,W)	R1146
	WK (K,NT)=W (K)	R1147
	IF (IDMETH (KSC).EQ.1) RQTL=QTY (KK,NT1)/TQF (ISEC,NT1)	R1148
	IF (IDMETH (KSC).EQ.2) RQTL=QTY (KK,NT1)/TQHAT (ISEC,NT1)	R1149
	80 WRITE (JDEBUG,125) NYRR (NT),QTY (KK,NT),AF1 (KK),RPT,BF (KK),RQTL,LF	R1150
	1KK),TQHATT,(XF (IX,NT),PARMF (KK,IX),IX=1,NXF)	R1151
	IF (ILAS.EQ.0) GO TO 85	R1152
	WRITE (JDEBUG,130) NMFUEL (KLAS (ILAS)), (NMFUEL (KSEC (K)),K=1,NK)	R1153
	GO TO 90	R1154
	85 WRITE (JDEBUG,135) (NMFUEL (KSEC (K)),K=1,NK)	R1155
	90 DO 95 NT=1,18	R1156
	95 WRITE (JDEBUG,140) NYRR (NT), (WK (K,NT),PRC (KSEC (K),NT),K=1,NK)	R1157
	IF ((ILAS.EQ.10).AND. (ISEC.EQ.3)) REWIND JDEBUG	R1158
	RETURN	R1159
C		R1160
	100 FORMAT (1H1, 26HMAJOR FUEL DEBUG REPORT - ,3A4, 7H SECTOR//1X, 37R	R1161
	1HTOTAL MAJORS INFORMATION, PERTURBING ,A4, 1HP//T9, 5HTQNDX,T19,R	R1162
	2 3HINT,T25, 5HTPNDX,T34, 4HBETA,T42, 4HTQ-L,T48, 6HLAMBDA,T62R	R1163
	3, 6HINCOME,T77, 5HGSSHR,T89, 7HPOP(VA),T107, 3HHDD,T121, 3HCDD	R1164
	4D//)	R1165
	105 FORMAT (1H1, 26HMAJOR FUEL DEBUG REPORT - ,3A4, 7H SECTOR//1X, 35R	R1166
	1HTOTAL MAJORS INFORMATION, BASE CASE//T9, 5HTQNDX,T19, 3HINT,T25R	R1167
	2, 5HTPNDX,T34, 4HBETA,T42, 4HTQ-L,T48, 6HLAMBDA,T62, 6HINCOMER	R1168
	3,T77, 5HGSSHR,T89, 7HPOP(VA),T107, 3HHDD,T121, 3HCDD//)	R1169
	110 FORMAT (/1X,I4,F8.1,3F8.3,F8.5,F8.3,4F7.3,F7.0,5F7.3)	R1170
	115 FORMAT (1H1, 26HMAJOR FUEL DEBUG REPORT - ,A4//1X, 24HFUEL REPORT,R	R1171

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1 PERTURBING ,A4, 1HP//T11, 3HQTY,T19, 3HINT,T26, 4HP/TP,T34, R1172
24HBETA,T40, 6HQ/TQ-L,T48, 6HLAMBDA,T57, 5HTQHAT,T70, 6HINCOME,R1173
3T85, 5HGSSHR,T97, 7HPOP(VA),T115, 3HHDD,T129, 3HCDD//) R1174
120 FORMAT (1H1, 26HMAJOR FUEL DEBUG REPORT - ,A4//1X, 22HFUEL REPORT,R1175
1 BASE CASE//T11, 3HQTY,T19, 3HINT,T26, 4HP/TP,T34, 4HBETA,T40,R1176
2 6HQ/TQ-L,T48, 6HLAMBDA,T57, 5HTQHAT,T70, 6HINCOME,T85, 5HGSSR1177
3HR,T97, 7HPOP(VA),T115, 3HHDD,T129, 3HCDD//) R1178
125 FORMAT (/1X,I4,F8.1,3F8.3,F8.5,F8.3,F8.1,4F7.3,F7.0,5F7.3) R1179
130 FORMAT (1H1, 37HVALUE WEIGHTS AND PRICES, PERTURBING ,A4, 1HP//6XR1180
1,6(6X,A4,6X)) R1181
135 FORMAT (1H1, 36HVALUE WEIGHTS AND PRICES, BASE CASE //6X,6(6X,A4,6R1182
1X)) R1183
140 FORMAT (/1X,I4,1X,6(F8.4,F8.2)) R1184
END R1185

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C=====R1186
C                                             R1187
C FUNCTION:      THIS FUNCTION SUBROUTINE (TQHAT) CALCULATES      R1188
C                VALUES FOR THE TOTAL QUANTITY INDEX FOR EACH    R1189
C                MAJOR FUEL SECTOR, FOR EACH YEAR.                R1190
C                                             R1191
C WRITTEN BY:    DAVID KNAPP AND LEW RUBIN                        R1192
C                                             R1193
C WRITTEN ON:    AUGUST 12, 1976                                  R1194
C                                             R1195
C LANGUAGE:      FORTRAN IV                                       R1196
C                                             R1197
C REQ. ROUTINES: TPF                                              R1198
C                                             R1199
C SYNERGY LABEL: P30                                             R1200
C                                             R1201
C LAST UPDATE:   OCTOBER 8, 1977                                   R1202
C                                             R1203
C NOMENCLATURE:  R1204
C                                             R1205
C                ISEC=1  RESIDENTIAL SECTOR                       R1206
C                ISEC=2  COMMERCIAL SECTOR                         R1207
C                ISEC=3  AGGREGATE INDUSTRIAL SECTOR             R1208
C                                             R1209
C REMARKS:      R1210
C                                             R1211
C                THE FUNCTION USES PARAMETER VALUES FROM THE PARAM COMMON      R1212
C                BLOCK AND PROJECTIONS OF RIGHTHAND SIDE VARIABLES FROM          R1213
C                SOLCOM TO FORECAST TOTAL ENERGY CONSUMPTION. THE RHS VAR-      R1214
C                IABLES TO BE USED IN THE EQUATION ARE SELECTED IN THE SEC-      R1215
C                TOR CONTROL ROUTINES; QRES, QCOMM, AND, QIAGG) AND PUT           R1216
C                INTO SOLCOM. THE METHOD FOR CONSTRUCTING INTERCEPTS IS CON-    R1217
C                TROLLED BY IBMETH IN PGMCOM. THE METHOD IS EQUATION SPECI-      R1218
C                FIC. THIS FUNCTION IS CALLED FOR CURRENT FORECASTS AND IS       R1219
C                ALSO USED FOR LAGGED VALUES IF IDMETH=1.           R1220
C                                             R1221
C=====R1222
C                FUNCTION TQHAT(ISEC,NT)                                     R1223
C                COMMON/PQCOM/PTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3),      R1224
C                1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18),          R1225
C                2 TQ(13,18),TP(4,18),TQFHAT(3,3),PNRC(18,18),PNBASE(18,18)    R1226
C                COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18),   R1227
C                1 YPRM(18),YPER(18)                                           R1228
C                COMMON/PARAM/AT(3),RT(3),LT(3),PARMT(3,5),AF(14),BF(14),      R1229
C                1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9)       R1230
C                COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18),      R1231
C                1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18), R1232
C                2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18),  R1233
C                3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18)                     R1234
C                COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18), R1235
C                1 CXPR(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18), R1236
C                2 SUTCOM(18),FPJTML(18),JOAF(18),NPOP(18),GNP58(18),KFRB(18), R1237
C                3 YP58N(18)                                                   R1238

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COMMON/PAARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3),
1  AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5),
2  TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9),
3  OF(9),OL(9),OG(9),OM(9),ATRS(5),GTRS(4,5),SHADJ(18,5)
COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3)
COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIC,IFINDX,
1  IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30),
2  NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14)
COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3)
COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9)
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10)
REAL LT,LF,JRWSSSE,LODFAC,JQAF,NPOP,KFRB
DIMENSION TOL(3,18),INYET(3,10)
DATA INYET/30*0/
NT1=NT-1
IF (NT.LE.1) NT1=NT
IYBM1=IYBNCH-1
IF (INYET(ISEC,IREG).GT.0) GO TO 15
INYET(ISEC,IREG)=1
IF (IBMETH(ISEC).GT.1) GO TO 5
AT1(ISEC)=AT(ISEC)*POP(IYBNCH)
GO TO 15
5 IF (IBMETH(ISEC).EQ.3) INIT=IYBNCH
IF (IBMETH(ISEC).EQ.2) INIT=IBM(ISEC)
INIT1=INIT-1
AT1(ISEC)=TPF(ISEC,INIT,W)**BT(ISEC)
DO 10 IX=1,NXT
AT1(ISEC)=AT1(ISEC)*XT(IX,INIT)**PARMT(ISEC,IX)
10 CONTINUE
IF (IBMETH(ISEC).EQ.2) AT1(ISEC)=TQPHAT(ISEC,INIT)/(AT1(ISEC)*(TQFR
1(ISEC,INIT1)/XT(3,INIT1))**LT(ISEC))
IF (IBMETH(ISEC).EQ.3) AT1(ISEC)=TQF(ISEC,INIT)/(AT1(ISEC)*(TQF(ISR
1EC,INIT1)/XT(3,INIT1))**LT(ISEC))
15 TQHAT=AT1(ISEC)*TPF(ISEC,NT,W)**BT(ISEC)
DO 20 IX=1,NXT
TQHAT=TQHAT*XT(IX,NT)**PARMT(ISEC,IX)
20 CONTINUE
IF ((IDMETH(ISEC).EQ.1).OR.((IDMETH(ISEC).EQ.2).AND.
1 (NT.LE.IYBNCH+1))) TQHAT=TQHAT*(TQF(ISEC,NT1)/
2 XT(3,NT1))**LT(ISEC)
IF ((IDMETH(ISEC).EQ.2).AND.(NT.GT.IYBNCH+1)) TQHAT=TQHAT*(TOL(ISEC
1C,NT1)/XT(3,NT1))**LT(ISEC)
TOL(ISEC,NT)=TQHAT
RETURN
END

```



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C=====
C
C FUNCTION:      THIS FUNCTION SUBROUTINE (TPF) CALCULATES      R1284
C                VALUE-WEIGHTED PRICE AND QUANTITY INDICIES FOR  R1285
C                USE IN THE MAJOR FUELS SECTORAL MODELS.         R1286
C                R1287
C                R1288
C                R1289
C WRITTEN BY:    DAVID KNAPP AND LEW RUBIN                      R1290
C                R1291
C WRITTEN ON:    AUGUST 12, 1976                                R1292
C                R1293
C LANGUAGE:     FORTRAN IV                                     R1294
C                R1295
C REQ. ROUTINES: NONE                                           R1296
C                R1297
C SYNERGY LABEL: P30                                             R1298
C                R1299
C LAST UPDATE:   OCTOBER 8, 1977                                R1300
C                R1301
C NOMENCLATURE:  R1302
C                R1303
C                REV = TOTAL SECTORAL ENERGY EXPENDITURE      R1304
C                W   = VALUE WEIGHT FOR EACH FUEL (SHARE OF     R1305
C                ENERGY BUDGET)                                R1306
C                KQ  = LOCATIONS OF QUANTITIES IN QTY ARRAY     R1307
C                KP  = LOCATION OF PRICES IN PRC ARRAY          R1308
C                NK  = NUMBER OF MAJOR FUELS IN SECTOR, PASSED  R1309
C                IN SOLCOM                                       R1310
C                KSEC= LOCATOR ARRAY PASSED IN SOLCOM           R1311
C                R1312
C REMARKS:       R1313
C                R1314
C                INTEGER ARITHMETIC IS USED FOR SELECTION OF    R1315
C                SPECIFIC INDUSTRY INDICES SINCE PRICES ARE      R1316
C                ASSUMED CONSTANT ACROSS ALL INDUSTRIES. VALUE  R1317
C                WEIGHTS ARE RETURNED TO THE SOLSEC SUBROUTINE   R1318
C                FOR DEBBUGING REPORT. THIS FUNCTION            R1319
C                ALSO IS USED BY THE PRICE PREPROCESSOR TO       R1320
C                CONSTRUCT LAGGED PRICE INDICES FOR INDUSTRIAL  R1321
C                SUBMODELS USING THE LAGCOM COMMON BLOCK.       R1322
C=====
C FUNCTION TPF (ISEC,NT,W)                                       R1323
C COMMON/PQCOM/QTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3),    R1324
C 1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18),         R1325
C 2 TQ(13,18),TP(4,18),TQFHAT(3,3),PNRC(18,18),PNBASE(18,18)   R1326
C COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18),  R1327
C 1 YPRM(18),YPER(18)                                           R1328
C COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14),     R1329
C 1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9)     R1330
C COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18),    R1331
C 1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18), R1332
C 2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18), R1333
C 3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18)                    R1334
C                                                                R1335

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COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18),
1 CXPRL(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18),
2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18),
3 YP58N(18)
COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3),
1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5),
2 TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9),
3 OF(9),OL(9),OG(9),OM(9),ATRSH(5),GTRSH(4,5),SHADJ(18,5)
COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3)
COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFPIC,IFINDX,
1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30),
2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14)
COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3)
COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9)
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10)
DIMENSION W(6)
IFP=1
TPF=1.

```

GENERAL VALUE WEIGHT CALCULATION FOR BOTH PRICE AND
QUANTITY INDICES.

```

5 REV=0.
  NT1=NT-1
  IF (NT.LE.1) NT1=NT

```

WEIGHTS FOR CURRENT INDICES (LAGGED ONE PERIOD).

```

DO 10 K=1,NK
  KQ=KSEC(K)
  KP=KQ-(KQ/44)*(34-MOD(K,6))
  REV=REV+PRC(KP,NT1)*QTY(KQ,NT1)
10 CONTINUE
DO 15 K=1,NK
  KQ=KSEC(K)
  KP=KQ-(KQ/44)*(34-MOD(K,6))
  W(K)=PRC(KP,NT1)*QTY(KQ,NT1)/REV
15 CONTINUE
GO TO 20
ENTRY TQF(ISEC,NT)
IFP=2
TQF=1.
GO TO 5
20 GO TO (25,35), IFP

```

LOG-LINEAR LAGGED VALUE-WEIGHTED QUANTITY INDEX.

```

25 DO 30 K=1,NK
  KP=KSEC(K)-(KSEC(K)/44)*(34-MOD(K,6))
  IF (NT.GE.1) TPF=TPF*PRC(KP,NT)**W(K)
30 CONTINUE
GO TO 45

```

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C		R1388
C	LOG-LINEAR LAGGED VALUE-WEIGHTED PRICE INDEX.	R1389
C		R1390
35	DO 40 K=1,NK	R1391
	KQ=KSEC (K)	R1392
	TQF=TQF*QTY (KQ,NT) **W (K)	R1393
40	CONTINUE	R1394
45	RETURN	R1395
	END	R1396

```

C=====
C
C FUNCTION:      THIS FUNCTION SUBROUTINE (SUM) AGGREGATES ACROSS
C                FUELS AND SECTORS (FOR A GIVEN REGION).
C
C WRITTEN BY:    LEW RUBIN
C
C WRITTEN ON:    AUGUST 12, 1976
C
C LANGUAGE:      FORTRAN IV
C
C REQ. ROUTINES: NONE
C
C SYNERGY LABEL: P30
C
C LAST UPDATE:   OCTOBER 8, 1977
C
C=====
FUNCTION SUM(K,NT)
COMMON/POCOM/PTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3),
1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18),
2 TQ(13,18),TP(4,18),TQFHAT(3,3),PNRC(18,18),PNBASE(18,18)
COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18),
1 YPRM(18),YPER(18)
COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14),
1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9)
COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18),
1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18),
2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18),
3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18)
COMMON/RHSTRN/RU(18),JRWSS(18),AHEEA(18),ASPEED(18),EFF(18),
1 CXPRL(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18),
2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18),
3 YP58N(18)
COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3),
1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5),
2 TRF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9),
3 OF(9),OL(9),OG(9),OM(9),ATRSH(5),GTRSH(4,5),SHADJ(18,5)
COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3)
COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIC,IFINDX,
1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30),
2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14)
COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3)
COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9)
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10)
DIMENSION LSUM(13),ISUM(12,13)
DATA ISUM/1,5,9,19,8*0,2,6,10,20,8*0,3,7,11,16,8*0,8,12,
1 18,9*0,4,13,21,22,23,24,6*0,25,26,27,9*0,15,17,33,34,35,
2 36,6*0,14,28,29,30,8*0,1,2,3,4,28,7*0,5,6,7,8,21,27,6*0,
3 9,10,11,12,13,14,20,23,24,25,26,30,15,16,17,18,19,22,29,
4 5*0,31,32,37,38,8*0/

```

DATA LSUM/4,4,4,3,6,3,6,4,5,6,12,7,4/	R1448
SUM=0.0	R1449
L=LSUM(K)	R1450
DO 5 I=1,L	R1451
5 SUM=SUM+QTY (ISUM (I,K) ,NT)	R1452
RETURN	R1453
END	R1454

```

C=====R1455
C                                           R1456
C FUNCTION      THIS SUBPROGRAM (BLOCK DATA) ENTERS DATA FOR VARIABLES R1457
C               KLAS, IFRS, IFCM, IFIN AND IFTR. R1458
C                                           R1459
C WRITTEN BY:    LEW RUBIN R1460
C                                           R1461
C WRITTEN ON:    AUGUST 12, 1976 R1462
C                                           R1463
C LANGUAGE:      FORTRAN IV R1464
C                                           R1465
C REQ. ROUTINES: NONE R1466
C                                           R1467
C SYNERGY LABEL: P30 R1468
C                                           R1469
C LAST UPDATE:   OCTOBER 8, 1977 R1470
C=====R1471
C   BLOCK DATA R1472
C   COMMON/POCOM/PTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3), R1473
C   1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18), R1474
C   2 TO(13,18),TP(4,18),TOPHAT(3,3),PNRC(18,18),PNBASE(18,18) R1475
C   COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18), R1476
C   1 YPRM(18),YPER(18) R1477
C   COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14), R1478
C   1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9) R1479
C   COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18), R1480
C   1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18), R1481
C   2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18), R1482
C   3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18) R1483
C   COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18), R1484
C   1 CXPR(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18), R1485
C   2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18), R1486
C   3 YP58N(18) R1487
C   COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3), R1488
C   1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5), R1489
C   2 TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9), R1490
C   3 OF(9),OL(9),OG(9),OM(9),ATRSH(5),GTRSH(4,5),SHADJ(18,5) R1491
C   COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3) R1492
C   COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIC,IFINDX, R1493
C   1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30), R1494
C   2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14) R1495
C   COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3) R1496
C   COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9) R1497
C   COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10) R1498
C   DATA KELAS/1,2,3,4,28,39,7*0,5,6,7,8,21,27,40,6*0,9,10, R1499
C   1 11,12,13,14,20,23,24,25,26,30,41,15,16,18,17,19,22,29, R1500
C   2 42,5*0,15,31,32,33,34,35,17,38,36,30,37,43,0/ R1501
C   DATA IELAS/6,7,13,8,12/ R1502
C   DATA IARRAY/0,1,0,5*1,0,4*2,0,4*3,2,4,0,4,4,3,5,4,0,5,0,6, R1503
C   1 3*0,4,7,2*0,6,0,8,4*0,9,5,5,7,5,10/ R1504
C   DATA KLAS/15,31,32,33,34,35,17,38,37,43/ R1505
C   DATA IFRS/0,1,1,1,0,1,0,0,1,1/ R1506

```

DATA IFCM/0,1,1,1,1,0,0,0,1,1/	R1507
DATA IFIN/0,1,1,1,1,1,0,1,1,1/	R1508
DATA IFTR/1,0,0,1,1,0,1,0,1,1/	R1509
END	R1510

```

C=====R1511
C                                             R1512
C FUNCTION      THIS SUBROUTINE (QTRANS) FORECASTS VALUES FOR   R1513
C               THE TRANSPORTATION SECTOR.                        R1514
C                                             R1515
C WRITTEN BY:    LEW RUBIN                                         R1516
C                                             R1517
C WRITTEN ON:    AUGUST 12, 1976                                    R1518
C                                             R1519
C LANGUAGE:      FORTRAN IV                                        R1520
C                                             R1521
C REQ. ROUTINES: NONE                                              R1522
C                                             R1523
C SYNERGY LABEL: P30                                              R1524
C                                             R1525
C LAST UPDATE:   OCTOBER 8, 1977                                   R1526
C                                             R1527
C REMARKS:                                               R1528
C                                             R1529
C   THIS SUBROUTINE SOLVES THE SWEENEY AUTO MODEL AND SEVERAL   R1530
C   ADDITIONAL STRUCTURAL EQUATIONS TO DERIVE THE COMPONENT     R1531
C   PARTS OF TRANSPORTATION DEMAND ON A NATIONAL BASIS.         R1532
C   THEN IT SUMS THE RELEVANT PARTS OF EACH FUEL CATEGORY AND   R1533
C   SOLVES FOR THE RELEVANT REGIONAL SHARE ON THE BASIS OF      R1534
C   REGIONAL INCOME AND POPULATION.                             R1535
C                                             R1536
C=====R1537
C   SUBROUTINE QTRANS(ILAS,IPARM)                                R1538
C   COMMON/PQCOM/PTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3),   R1539
C   1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18),       R1540
C   2 TQ(13,18),TP(4,18),TQFHT(3,3),PNRC(18,18),PNBASE(18,18) R1541
C   COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18), R1542
C   1 YPRM(18),YPER(18)                                          R1543
C   COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14),   R1544
C   1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9)   R1545
C   COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18),  R1546
C   1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18), R1547
C   2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18), R1548
C   3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18)                   R1549
C   COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18), R1550
C   1 CXPRL(18),ARPAIR(18),LODFAC(18),X5ED44(18),RA(18),AVSPBS(18), R1551
C   2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18), R1552
C   3 YP58N(18)                                                  R1553
C   COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3), R1554
C   1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5), R1555
C   2 TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9),  R1556
C   3 OF(9),OL(9),OG(9),OM(9),ATRSH(5),GTRSH(4,5),SHADJ(18,5)  R1557
C   COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3)                   R1558
C   COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIC,IFINDX,  R1559
C   1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30),     R1560
C   2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14) R1561

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COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3)
COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9)
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10)
REAL LT,LF,JRWSS,LODFAC,JQAF,NPOP,KFRB
DIMENSION IPARM(2)
DIMENSION TRFL(18),BSFL(18),PGAS(18),PDF(18),
1 PDFW(18),PDL(18),PRF(18),PRFL(18),PCTDF(18),AMPGTR(18),
2 FELT(18),NUNGAS(18),NUNDFL(18),NUNJTF(18),NUNRFL(18),NUNLPG(18)
REAL MPG(18),MPGC(18),NPCR(18),NHWYGS(18)
REAL NATGS,NATDS,NATJF,NATRF,NATLG
JTRDBG=IREG+85
IYBTRN=3
IY1PRJ=IYBNCH+1
IY1TRN=IYBTRN+1

```

FIRST THE PRICES AND MACRO VARIABLES FROM THE MAIN DATA
 ARRAYS ARE ADJUSTED TO BE COMPATIBLE WITH THE STRUCTURE
 OF THE TRANSPORTATION MODEL - FOR EXAMPLE, PRICES MUST BE
 IN \$/PHYSICAL UNIT IN 1967 \$.

```

WRITE(6,75)
DO 5 NT=1,18
FPJTML(NT)=FPJTML(IYBTRN)
PGAS(NT)=PNRC(15,NT)*CFAC(15)/67.704
PDL(NT)=PNRC(11,NT)*CFAC(11)/73.836
PDFW(NT)=PDL(NT)
PDF(NT)=PNRC(16,NT)*CFAC(16)/67.704
PRF(NT)=PNRC(18,NT)*CFAC(18)/73.836
5 TPJFT(NT)=.8*ARPAIR(NT)+(PNRC(17,NT)*CFAC(17)/67.704)/.1635

```

NOW CERTAIN POLICY OPTIONS CAN BE IMPLEMENTED. IPARM(1)
 CONTROLS WHETHER OR NOT A MILES-PER-GALLON STANDARD WILL
 BE IMPLEMENTED AND IPARM(2) CONTROLS WHETHER OR NOT A
 LOAD-FACTOR STANDARD WILL BE IMPLEMENTED.

```

PRFL(IYBTRN)=(PGAS(IYBTRN)*PGAS(IYBTRN-1)*TRBSGS(IYBTRN-1)
1 +PDF(IYBTRN)*PDF(IYBTRN-1)*TRBSDF(IYBTRN-1))/(PGAS(IYBTRN-1)*TRBSR
2GS(IYBTRN-1)+PDF(IYBTRN-1)*TRBSDF(IYBTRN-1))
TBA(5)=ALOG(RATIO(IYBTRN)/(SUTCOM(IYBTRN)**TBM(5)*
1 RATIO(IYBTRN-1)**TBL(5)*(PGAS(IYBTRN)/PRFL(IYBTRN))**
2 TBB(5)))
AA(1)=ALOG(VM(IYBTRN)/(NPOP(IYBTRN)*COST(IYBTRN)**AB(1)*
1 YP58N(IYBTRN)**AE(1)*EXP(RU(IYBTRN)*AUF(1))))
IF(IPARM(1).EQ.0) GO TO 10
READ(60,*) MPG
REWIND 60
10 IF(IPARM(2).EQ.0) GO TO 15
READ(61,*) LODFAC
REWIND 61

```

NOW THE MODEL WILL SOLVE, YEAR BY YEAR, FOR NATIONAL
 TOTALS, USING SPECIFIC REGIONAL PRICE AND PER-CAPITA

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INCOME VALUES.

```

15 DO 30 NT=1Y1TRN,18
    AMPG(NT)=AMPG(NT-1)
20 AMPGL=AMPG(NT)
    COST(NT)=AUGC(1)*AUGC(2)*AHEEA(NT)/(ASPEED(NT)*AUGC(3)
1 +AUGC(4)*AUGC(5))+PGAS(NT)/AMPGL
    VM(NT)=NPOP(NT)*EXP(AA(1))*COST(NT)**AB(1)*YP58N(NT)**AE(1)*EXP(RUR1621
1(NT)*AUF(1))*(VM(NT-1)/NPOP(NT-1))*AR(1)*(EXP(AA(1))*COST(NR1622
2T-1)**AB(1)*YP58N(NT-1)**AE(1)*EXP(RU(NT-1)*AUF(1)))*(-AR(1)) R1623
    NPCR(NT)=NPOP(NT)*EXP(AA(2))*OMEGA(NT-1)/NPOP(NT-1)**AL(2)*(VM(NR1624
1T)/NPOP(NT))**AG(2)*YP58N(NT)**AE(2)*EXP(RU(NT)*AUF(2)) R1625
    PCR(NT)=AUGC(6)*PCR(NT-1)+NPCR(NT) R1626
    OMEGA(NT)=NPCR(NT)+AUGC(6)*AUGC(7)*OMEGA(NT-1) R1627
    MPGC(NT)=EXP(AA(3))*PGAS(NT-1)**AB(3)*EFF(NT)**(1.-AB(3)) R1628
    IF ((IPARM(1).EQ.1).AND.(MPGC(NT).LT.MPG(NT))) GO TO 25 R1629
    MPG(NT)=MPGC(NT) R1630
25 THETA(NT)=NPCR(NT)/MPG(NT)+AUGC(6)*AUGC(7)*THETA(NT-1) R1631
    AMPG(NT)=OMEGA(NT)/THETA(NT) R1632
    IF (ABS(AMPG(NT)-AMPGL).GT..01) GO TO 20 R1633
    GAS(NT)=VM(NT)/AMPG(NT) R1634
    PRFL(NT-1)=(PGAS(NT)*PGAS(NT-1)*TRBSGS(NT-1)+PDF(NT)*
1 PDF(NT-1)*TRBSDF(NT-1))/(PGAS(NT-1)*TRBSGS(NT-1)+
2 PDF(NT-1)*TRBSDF(NT-1)) R1636
    PCTDF(NT-1)=TRBSDF(NT-1)/(TRBSDF(NT-1)+TRBSGS(NT-1)) R1638
    VMTRK(NT)=EXP(TBA(1))*PRFL(NT-1)**TBB(1)*GNP58(NT)**TBE(1)*KFRB(NTR1639
1)**TBT(1) R1640
    AMPGTR(NT)=EXP(TBA(2))*EXP(RA(NT)*TBM(2))*KFRB(NT)**TBT(2)*SUTCOM(R1641
1NT)**TBG(2) R1642
    TRFL(NT)=VMTRK(NT)/AMPGTR(NT) R1643
    VMBUS(NT)=EXP(TBA(3))*PRFL(NT-1)**TBB(3)*YP58N(NT)**TBE(3) R1644
    AMPGBS(NT)=AMPGBS(NT-1)**TBR(4)*EXP(TBA(4))*EXP(RU(NT)*TBF(4))**AVR1645
1SPBS(NT)**TBM(4)*(EXP(TBA(4))*EXP(RU(NT-1)*TBF(4))*AVSPBS (NTR1646
2-1)**TBM(4))*(-TBR(4)) R1647
    BSFL(NT)=VMBUS(NT)/AMPGBS(NT) R1648
    RATIO(NT)=EXP(TBA(5))*SUTCOM(NT)**TBM(5)*RATIO(NT-1)**TBL(5)*(PGASR1649
1(NT)/PRFL(NT-1))*TBB(5) R1650
    TRBSGS(NT)=RATIO(NT)*(BSFL(NT)+TRFL(NT)) R1651
    TRBSDF(NT)=(1.-RATIO(NT))*(BSFL(NT)+TRFL(NT)) R1652
    TMRL(NT)=EXP(OA(1))*(PDFW(NT))*OB(1)*CXPR(NT)**OE(1) R1653
    RLDF(NT)=RLDF(NT-1)**OR(2)*EXP(OA(2))*TMRL(NT)**OG(2)*JRWSSE(NT)**R1654
1OM(2)*(EXP(OA(2))*TMRL(NT-1)**OG(2)*JRWSSE(NT-1)**OM(2))*(-OR(2)) R1655
    PMAIR(NT)=PMAIR(NT-1)**OR(3)*EXP(OA(3))*TPJFT(NT)**OB(3)*YP58N(NT) R1656
1**OE(3)*(EXP(OA(3))*TPJFT(NT-1)**OB(3)*YP58N(NT-1)**OE(3))*(-OR(3R1657
2)) R1658
    FPJTC(NT)=FPJTC(NT-1)**OR(4)*EXP(OA(4))*(PMAIR(NT)/LODFAC(NT))*OGR1659
1(4)*(EXP(OA(4))*(PMAIR(NT-1)/LODFAC(NT-1))*OG(4))*(-OR(4)) R1660
    NHWYGS(NT)=EXP(OA(5))*GNP58(NT)**OE(5)*EXP(OM(5)*(NT+26)) R1661
    FBTB(NT)=EXP(OA(6))*FBTB(NT-1)**OL(6) R1662
    FPLGT(NT)=EXP(OA(7))*FPLGT(NT-1)**OR(7)*KFRB(NT)**OT(7)*JQAF(NT)**R1663
1OM(7)*(EXP(OA(7))*KFRB(NT-1)**OT(7)*JQAF(NT-1)**OM(7))*(-OR (7R1664
2)) R1665

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=====
FPRFT(NT)=EXP(OA(8))*FPRFT(NT-1)**OR(8)*RLDF(NT)**OG(8)*X58D44(NT) R1666
1**OE(8)*(PDFL(NT)/PRF(NT))*OB(8)*(EXP(OA(8))*RLDF(NT-1))**OGR1667
2(8)*X58D44(NT-1)**OE(8)*(PDFL(NT-1)/PRF(NT-1))*OB(8))*(-OR(8)) R1668
30 CONTINUE R1669
C R1670
C NEXT A DECISION IS MADE AS TO HOW THE INTERCEPTS FOR R1671
C THE FUEL SHARING EQUATIONS ARE TO BE CALCULATED. THE R1672
C VARIABLE IBMETH = 1 FOR ESTIMATED INTERCEPTS, 2 FOR R1673
C CALCULATED INTERCEPTS BASED ON PREDICTED VALUES, AND R1674
C 3 FOR CALCULATED INTERCEPTS BASED ON ACTUAL VALUES. R1675
C R1676
IF (IBMETH(18).EQ.1) GO TO 45 R1677
IF (IBMETH(18).EQ.3) GO TO 40 R1678
DO 35 K=15,19 R1679
KK=K+3*K/19 R1680
QTY(KK,IYBNCH)=QTYPRE(KK,IYBNCH) R1681
35 QTYN(KK,IYBNCH)=QTYPRN(KK,IYBNCH) R1682
40 ATRSH(1)=QTY(15,IYBNCH)/(QTYN(15,IYBNCH)*POP(IYBNCH)**GTRSH(3,1)* R1683
1 YCAP(IYBNCH)**GTRSH(2,1)) R1684
ATRSH(2)=QTY(16,IYBNCH)/(QTYN(16,IYBNCH)*POP(IYBNCH)* R1685
1 YCAP(IYBNCH)**GTRSH(2,2)) R1686
ATRSH(3)=QTY(17,IYBNCH)/(QTYN(17,IYBNCH)*POP(IYBNCH)**GTRSH(3,3)* R1687
1 YCAP(IYBNCH)**GTRSH(2,3)) R1688
ATRSH(4)=QTY(18,IYBNCH)/(QTYN(18,IYBNCH)*(IYBNCH+13)**GTRSH(1,4)) R1689
ATRSH(5)=QTY(22,IYBNCH)/(QTYN(22,IYBNCH)*(IYBNCH+13)**GTRSH(1,5)* R1690
1 YCAP(IYBNCH)**GTRSH(2,5)*QTY(22,IYBNCH-1)**GTRSH(4,5)) R1691
PRMNA(7)=QTY(27,IYBNCH)/(QTY(15,IYBNCH)**PRMNG(7)) R1692
C R1693
C NOW THE FUELS ARE REGIONALIZED. R1694
C R1695
45 DO 55 NT=IY1PRJ,18 R1696
QTY(15,NT)=(ATRSH(1)*POP(NT)**GTRSH(3,1)*YCAP(NT)**GTRSH(2,1))*{(GR1697
1AS(NT)+TRBSGS(NT)+NHWYGS(NT))*CFAC(15)/42.+ADFC(1))/SHADJ(NT,1) R1698
QTY(16,NT)=(ATRSH(2)*POP(NT)**GTRSH(3,2)*YCAP(NT)**GTRSH(2,2))*{(TR1699
1RBSDF(NT)+RLDF(NT))*CFAC(16)/42.+ADFC(2))/SHADJ(NT,2) R1700
QTY(17,NT)=(ATRSH(3)*POP(NT)**GTRSH(3,3)*YCAP(NT)**GTRSH(2,3))*{(FR1701
1PJTC(NT)+FPJTML(NT)*42.)*CFAC(17)/42.+ADFC(3))/SHADJ(NT,3) R1702
QTY(18,NT)=ATRSH(4)*(NT+13)**GTRSH(1,4)*(FPRFT(NT)* R1703
1 CFAC(18)/42.+ADFC(4))/SHADJ(NT,4) R1704
QTY(22,NT)=ATRSH(5)*(NT+13)**GTRSH(1,5)*QTY(22,NT-1)**GTRSH(4,5)*YR1705
1CAP(NT)**GTRSH(2,5))*{(FPLGT(NT)*CFAC(22)/42.)*.16)/SHADJ(NT,5) R1706
QTY(19,NT)=QTY(19,IYBNCH) R1707
QTY(27,NT)=PRMNA(7)*QTY(15,NT)**PRMNG(7) R1708
C R1709
C COMPUTE AND WRITE OUT UNSHARED FUELS FOR NEXT SHARE ADJUSTMENT. R1710
C R1711
NATGS=((GAS(NT)+TRBSGS(NT)+NHWYGS(NT))*CFAC(15)/42.+ADFC(1)) R1712
NATDS=((TRBSDF(NT)+RLDF(NT))*CFAC(16)/42.+ADFC(2)) R1713
NATJF=((FPJT(NT)+FPJTML(NT)*42.)*CFAC(17)/42.+ADFC(3)) R1714
NATRF=(FPRFT(NT)*CFAC(18)/42.+ADFC(4)) R1715
NATLG=((FPLGT(NT)*CFAC(22)/42.)*.16) R1716
SHRGS=(ATRSH(1)*POP(NT)**GTRSH(3,1)*YCAP(NT)**GTRSH(2,1)) R1717

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SHRDS=(ATRS(2)*POP(NT)**GTRS(3,2)*YCAP(NT)**GTRS(2,2)) R1718
SHRJF=(ATRS(3)*POP(NT)**GTRS(3,3)*YCAP(NT)**GTRS(2,3)) R1719
SHRRF=(ATRS(4)*(NT+13)**GTRS(1,4)) R1720
SHRLG=(ATRS(5)*(NT+13)**GTRS(1,5)*QTY(22,NT-1)**GTRS(4,5) R1721
1 *YCAP(NT)**GTRS(2,5)) R1722
IF (IREG.EQ.3) GO TO 50 R1723
QTY(29,NT)=0.0 R1724
GO TO 55 R1725
50 QTY(29,NT)=FBTB(NT)+ADFC(6) R1726
55 CONTINUE R1727
WRITE (JTRDBG,80) R1728
DO 60 NT=1,18 R1729
60 WRITE (JTRDBG,85) NYRR(NT),GAS(NT),VM(NT),AMPG(NT),MPG(NT),NPCR(NT) R1730
1),PCR(NT),COST(NT),PGAS(NT),YP58N(NT),NPOP(NT),POP(NT),QTY(15,NT) R1731
WRITE (JTRDBG,90) R1732
DO 65 NT=1,18 R1733
65 WRITE (JTRDBG,95) NYRR(NT),VMTRK(NT),VMBUS(NT),AMPGTR(NT),AMPGBS(NT) R1734
1),TRBSGS(NT),TRBSDF(NT),TPJFT(NT),PMAIR(NT),FPJTC(NT) R1735
WRITE (JTRDBG,100) R1736
DO 70 NT=1,18 R1737
70 WRITE (JTRDBG,105) NYRR(NT),RLDF(NT),FPLGT(NT),FPRFT(NT),TRFL(NT), R1738
1BSFL(NT),NHWYGS(NT) R1739
IF (ILAS.EQ.10) REWIND JTRDBG R1740
RETURN R1741
C R1742
75 FORMAT (1X,21HTRANSPORTATION SECTOR) R1743
80 FORMAT (1H1,12X,3HGAS,8X,2HVM,6X,4HAMPG,7X,3HMPG,6X,4HNPR1744
1CR,7X,3HPCR,6X,4HCOST,6X,4HPGAS,5X,5HP58N,6X,4HNPOP,3X,R1745
2 7HREG POP,4X,6HQTY-15//) R1746
85 FORMAT (1X,I4,1X,2F10.0,2F10.2,2F10.0,2F10.5,F10.4,2F10.0,F10.2/) R1747
90 FORMAT (1H1,10X,5HVMTRK,5X,5HVMBUS,4X,6HAMPGTR,4X,6HAMPGBSR1748
1,4X,6HTRBSGS,4X,6HTRBSDF,5X,5HTPJFT,5X,5HPMAIR,5X,5HFPJTR1749
2C//) R1750
95 FORMAT (1X,I4,1X,F10.1,F10.2,2F10.2,2F10.1,F10.3,2F10.2/) R1751
100 FORMAT (1H1,11X,4HRLDF,5X,5HFPLGT,5X,5HFPRFT,6X,4HTRFL,6X,R1752
1 4HBSFL,4X,6HNHWYGS//) R1753
105 FORMAT (1X,I4,1X,6F10.2/) R1754
END R1755
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C=====R1756
C R1757
C FUNCTION: THIS SUBROUTINE (REPORT) WRITES OUT THE ENERGY R1758
C BALANCE REPORT. R1759
C R1760
C WRITTEN BY: LEW RUBIN R1761
C R1762
C WRITTEN ON: AUGUST 12, 1976 R1763
C R1764
C LANGUAGE: FORTRAN IV R1765
C R1766
C REQ. ROUTINES: NONE R1767
C R1768
C SYNERGY LABEL: P30 R1769
C R1770
C LAST UPDATE: OCTOBER 8, 1977 R1771
C R1772
C=====R1773
SUBROUTINE REPORT(ILAS) R1774
COMMON/PQCOM/PTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3), R1775
1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18), R1776
2 TQ(13,18),TP(4,18),TQFHAT(3,3),PNRC(18,18),PNBASE(18,18) R1777
COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18), R1778
1 YPRM(18),YPER(18) R1779
COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14), R1780
1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9) R1781
COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18), R1782
1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18), R1783
2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18), R1784
3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18) R1785
COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18), R1786
1 CXPRL(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18), R1787
2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18), R1788
3 YP58N(18) R1789
COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3), R1790
1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5), R1791
2 TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9), R1792
3 OF(9),OL(9),OG(9),OM(9),ATRS(5),GTRSH(4,5),SHADJ(18,5) R1793
COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3) R1794
COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIC,IFINDX, R1795
1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30), R1796
2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14) R1797
COMMON/SOLCOM/XF(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3) R1798
COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9) R1799
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10) R1800
II=IREG+40 R1801
IF (ILAS.EQ.0) GO TO 5 R1802
WRITE (II,35) NMREG,NMFUEL(KLAS(ILAS)) R1803
GO TO 10 R1804
5 WRITE (II,40) NMREG R1805
10 WRITE (II,45) (NYR(NT),NT=1,9) R1806
DO 15 K=1,43 R1807
15 WRITE (II,50) NMFUEL(K),{QTY(K,NT),NT=1,9) R1808

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Detailed Explanation and Documentation of the Software Package

<pre> WRITE (II,55) (NYR(NT),NT=10,18) DO 20 K=1,43 20 WRITE (II,50) NMFUEL(K), (QTY(K,NT),NT=10,18) WRITE (II,55) (NYR(NT),NT=1,9) DO 25 I=1,18 25 WRITE (II,60) NMFUEL(I), (PRC(I,NT),NT=1,9) WRITE (II,45) (NYR(NT),NT=10,18) DO 30 I=1,18 30 WRITE (II,60) NMFUEL(I), (PRC(I,NT),NT=10,18) IF (ILAS.EQ.10) REWIND II RETURN C 35 FORMAT (1H1, 34HFULL QUANTITY AND PRICE ARRAY FOR ,A4, 13H, PERTURR 1BING ,A4, 1HP/1X, 40HQUNTITIES IN TRILLIONS OF BTUS PER YEAR/1X, 2 28HPRICES IN \$ PER MILLION BTUS) 40 FORMAT (1H1, 34HFULL QUANTITY AND PRICE ARRAY FOR ,A4, 11H, BASE CR 1ASE/1X, 40HQUNTITIES IN TRILLIONS OF BTUS PER YEAR/1X, 28HPRICES 2IN \$ PER MILLION BTUS) 45 FORMAT (6X,9(7X,I4)) 50 FORMAT (1X,A4,1X,9F11.3) 55 FORMAT (1H1,5X,9(7X,I4)) 60 FORMAT (1X,A4, 1HP,9F11.3) END </pre>	<pre> R1809 R1810 R1811 R1812 R1813 R1814 R1815 R1816 R1817 R1818 R1819 R1820 R1821 R1822 R1823 R1824 R1825 R1826 R1827 R1828 R1829 R1830 R1831 </pre>
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C=====R1832
C                                             R1833
C FUNCTION:      THIS SUBROUTINE (ELAST) WRITES OUT THE   R1834
C               ELASTICITY REPORT.                        R1835
C               R1836
C WRITTEN BY:    DAVID KNAPP                               R1837
C               R1838
C WRITTEN ON:    AUGUST 12, 1976                           R1839
C               R1840
C LANGUAGE:     FORTRAN IV                                R1841
C               R1842
C REQ. ROUTINES: NONE                                       R1843
C               R1844
C SYNERGY LABEL: P30                                        R1845
C               R1846
C LAST UPDATE:  OCTOBER 8, 1977                             R1847
C               R1848
C=====R1849
SUBROUTINE ELAST(ILAS)                                     R1850
COMMON/PQCOM/PTY(43,18),PRC(18,18),CFAC(30),QTYPRE(43,3), R1851
1 QTYN(43,3),QTYPRN(43,3),QBASE(43,18),PBASE(18,18),      R1852
2 TQ(13,18),TP(4,18),TQFHAT(3,3),PNRC(18,18),PNBASE(18,18) R1853
COMMON/MACRO/POP(18),YCAP(18),VA(9,18),DEFL(4,18),GSC(3,18), R1854
1 YPRM(18),YPER(18)                                       R1855
COMMON/PARAM/AT(3),BT(3),LT(3),PARMT(3,5),AF(14),BF(14),  R1856
1 LF(14),PARMF(14,5),PRMNA(9),PRMNB(9),PRMNG(9),PRMNL(9)  R1857
COMMON/VLITRN/AMPG(18),VM(18),GAS(18),COST(18),THETA(18), R1858
1 OMEGA(18),PCR(18),TRBSGS(18),TRBSDF(18),AMPGBS(18),RATIO(18), R1859
2 VMTRK(18),VMBUS(18),TMRL(18),RLDF(18),TPJFT(18),PMAIR(18), R1860
3 FPJTC(18),FBTB(18),FPLGT(18),FPRFT(18)                 R1861
COMMON/RHSTRN/RU(18),JRWSSE(18),AHEEA(18),ASPEED(18),EFF(18), R1862
1 CXPRL(18),ARPAIR(18),LODFAC(18),X58D44(18),RA(18),AVSPBS(18), R1863
2 SUTCOM(18),FPJTML(18),JQAF(18),NPOP(18),GNP58(18),KFRB(18), R1864
3 YP58N(18)                                                R1865
COMMON/PARMTR/AUFC(7),ADFC(6),AUT(3),AR(3),AA(3),AB(3),AE(3), R1866
1 AUF(3),AL(3),AG(3),AM(3),TBT(5),TBR(5),TBA(5),TBB(5),TBE(5), R1867
2 TBF(5),TBL(5),TBG(5),TBM(5),OT(9),OR(9),OA(9),OB(9),OE(9),  R1868
3 OF(9),OL(9),OG(9),OM(9),ATRSH(5),GTRSH(4,5),SHADJ(18,5)  R1869
COMMON/OUTCOM/NMFUEL(43),NMREG,NMSEC(5,3)                 R1870
COMMON/PGMCOM/IDRUN(14),NDATE(2),TIME(4),IREG,IFSIC,IFINDX, R1871
1 IFELAS(10),IEMETH,IPMETH,IYBNCH,IBMETH(30),IDMETH(30),      R1872
2 NYR(18),NYRR(18),IFRS(10),IFCM(10),IFIN(10),IFTR(10),IFNHKP(14) R1873
COMMON/SOLCOM/XT(5,18),XF(5,18),NXT,NXF,NK,KSEC(6),AT1(3),IBM(3) R1874
COMMON/LAGCOM/QO(42,9),PO(6,9),VO(42,9)                  R1875
COMMON/PTBCOM/KLAS(10),KELAS(13,5),IELAS(5),IARRAY(5,10)  R1876
DIMENSION E(13,5)                                         R1877
C               R1878
C               R1879
C ON FIRST CALL, WRITE OUT REGIONAL HEADINGS.             R1879
C START MAIN LOOP; FIRST DECIDE IF THIS SET OF ELASTICITIES R1880
C SHOULD BE WRITTEN OUT IN PARTICULAR SECTOR ARRAY.      R1881
C               R1882

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WRITE (6,45) NMFUEL(KLAS(ILAS))
DO 40 I=1,5
II=IREG+10
IF (IARRAY(I,ILAS).EQ.0) GO TO 40
WRITE (II,50) NMREG,(NMSEC(I,L),L=1,3)
C
C   WRITE PRICE BEING PERTURBED AT TOP OF EACH FILE; THEN WRITE
C   OUT ALL RELEVANT FUELS ALONG NEXT ROW.
C
WRITE (II,55) NMFUEL(KLAS(ILAS))
ILS=IELAS(I)
WRITE (II,60) (NMFUEL(KELAS(K,I)),K=1,ILS)
C
C   ENTER YEAR LOOP; CALCULATE ELASTICITIES FOR EACH YEAR.
C
IY1PRJ=IYBNCH+1
RANGE=18.-IYBNCH
RANGER=8.-IYBNCH
DO 35 NT=IY1PRJ,18
C
C   PICK THE PROPER PRICE PATH AND CALCULATION METHOD; GENERATE
C   PRICE FACTORS FOR BOTH MIDPOINT AND LOG METHODS.
C
IF ((IPMETH.EQ.2.AND.NT.GE.8).OR.IPMETH.EQ.0) GO TO 10
IF (IPMETH.EQ.2.AND.NT.LT.8) GO TO 5
PFAC1=(1.1**((NT-IYBNCH)/RANGE)+1.)/(1.1**((NT-IYBNCH)/RANGE)-1.)
PFAC2=ALOG(1.1**((NT-IYBNCH)/RANGE))
GO TO 15
5 PFAC1=(1.1**((NT-IYBNCH)/RANGER)+1.)/(1.1**((NT-IYBNCH)/RANGER)
1 -1.)
PFAC2=ALOG(1.1**((NT-IYBNCH)/RANGER))
GO TO 15
10 PFAC1=21.
PFAC2=ALOG(1.1)
15 KK=IELAS(I)
C
C   CALCULATE ELASTICITIES FOR PROPER FUELS DEPENDING ON SECTOR
C   AND NUMBER OF RELEVANT FUELS IN THE SECTOR.
C
DO 30 L=1,KK
QX=QBASE(KELAS(L,I),NT)
Q1=QTY(KELAS(L,I),NT)
IF (IEMETH.EQ.0) GO TO 20
IF (QX.EQ.0.0) GO TO 25
E(L,I)=(ALOG(Q1/QX))/PFAC2
GO TO 30
20 IF (QX+Q1.EQ.0.0) GO TO 25
E(L,I)=((Q1-QX)/(Q1+QX))*PFAC1
GO TO 30
25 E(L,I)=.000
30 CONTINUE

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C		R1934
C	WRITE OUT ELASTICITIES, ONE ROW AT A TIME, TO RELEVANT	R1935
C	SECTORAL FILE.	R1936
C		R1937
	ILS=IELAS(I)	R1938
35	WRITE (II,65) NYRR(NT), (E(L,I), L=1, ILS)	R1939
40	CONTINUE	R1940
	IF (ILAS.EQ.10) REWIND II	R1941
	RETURN	R1942
C		R1943
45	FORMAT (1X, 25HCOMPUTE ELASTICITIES FOR ,A4, 1HP)	R1944
50	FORMAT (1H1,2X, 26HREGIONAL ELASTICITIES FOR ,A4, 2H, ,3A4, 7H SR	R1945
	1ECTOR)	R1946
55	FORMAT (3X, 8HPERTURB ,A4, 1HP)	R1947
60	FORMAT (6X,13(5X,A4))	R1948
65	FORMAT (1X,I4,1X,13F9.3)	R1949
	END	R1950

6. DFACE Source Code Listing

C=====	D	1
C	D	2
C FUNCTION: THIS PROGRAM (DFACE) READS THE PRICE, QUANTITY	D	3
C AND ELASTICITY RESULTS OF RDFOR, ONE REGION	D	4
C AT A TIME, AND PUTS OUT ALL REGIONAL INFORMATION	D	5
C IN PIES-READABLE FORMAT.	D	6
C	D	7
C STATUS: MAIN PROGRAM	D	8
C	D	9
C LANGUAGE: FORTRAN IV	D	10
C	D	11
C REQ. ROUTINES: OSICLK, INPUTS, RPTPS, ELASPS, PQR, ELSDEM,	D	12
C USQELS	D	13
C	D	14
C SYNERGY LABEL: P50	D	15
C	D	16
C LAST UPDATE: OCTOBER 8, 1977	D	17
C	D	18
C NOMENCLATURE:	D	19
C	D	20
C KREG = NUMBER OF REGIONS (CENSUS VS. FEA)	D	21
C IYBNCH = LAST DATA YEAR	D	22
C IEMETH = ELASTICITY CALCULATION METHOD	D	23
C 0 = MID-POINT	D	24
C 1 = LOGARITHMS	D	25
C IPMETH = PRICE PATH CALCULATION	D	26
C 0 = STAIR-STEP	D	27
C 1 = RAMP	D	28
C 2 = DOG-LEG	D	29
C IY1PRJ = FIRST PROJECTION YEAR (IYBNCH+1 IN GENERAL)	D	30
C IYR = THREE PIES YEARS FOR WHICH PIES REPORTS ARE	D	31
C PRODUCED (GENERALLY 80, 85 & 90).	D	32
C	D	33
C REMARKS:	D	34
C	D	35
C THIS PROGRAM IS CONTROLLED BY A REGION LOOP. ON THE LAST PASS	D	36
C THROUGH THE LOOP IT CONSTRUCTS NATIONAL PRICES, QUANTITIES AND	D	37
C ELASTICITIES. ALL REGIONAL INFORMATION IS PUT OUT IN PIES-	D	38
C READABLE FORMAT AS WELL AS MORE DETAILED STANDARD REPORT	D	39
C FORMAT FOR CONSUMPTION BY THE GENERAL PUBLIC.	D	40
C	D	41
C=====	D	42
COMMON/PQRPT/QTBTU(43,18),QTYPU(43,18),QTYPUD(43,18),	D	43
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18)	D	44
COMMON/POENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18),	D	45
1 PRCREG(10,18,18),QTYPTB(10,43,18)	D	46
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3),	D	47
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2),	D	48
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4)	D	49
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2)	D	50
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2)	D	51
2 ,IVERSN(2),IRNNME(2)	D	52

COMMON/PIES/QTYP(30,3),PRCPS(18,3)	D 53
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10),	D 54
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4)	D 55
COMMON/PQBASE/QTY(43,18),PRC(18,18),E(18,43,10),	D 56
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11),	D 57
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30),	D 58
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10)	D 59

C	FIRST ZERO OUT ALL NATIONAL ARRAYS SO THAT ACCUMULATION	D 60
C	CAN BEGIN CLEANLY.	D 61
C		D 62
C		D 63

C	DO 5 NT=1,18	D 64
	DO 5 K=1,43	D 65
	QTYNAT(K,NT)=0.0	D 66
	DO 5 IPR=1,10	D 67
5	QNTPTB(IPR,K,NT)=0.0	D 68
	DO 10 NT=1,3	D 69
	DO 10 J=1,11	D 70
	DO 10 K=1,30	D 71
	QPSBTU(K,NT,J)=0.0	D 72
	CONSAV(K,NT,J)=0.0	D 73
	SOLGEO(K,NT,J)=0.0	D 74
10	BOILSH(K,NT,J)=0.0	D 75

C	READ IN CONTROL PARAMETERS:	D 76
C		D 77
C		D 78

C	READ (1,40) KREG,(IYR(I),I=1,3),ICON,ISCALE,ISHIFT	D 79
	READ (5,45) IDCNTL,ICNS,ICODE,IVERSN,IRNNME	D 80
	IF (ICON.NE.1) GO TO 15	D 81
	CALL OSICLK (2HGR,NDATE(1),2HDC,TIME(1))	D 82
	WRITE (3,50) NDATE,TIME(1),TIME(2)	D 83
	REWIND 3	D 84
	GO TO 20	D 85
15	READ (3,50) NDATE,TIME(1),TIME(2)	D 86

C	NOW ENTER THE MAIN REGIONAL LOOP, READ PRICES, QUANTITIES AND	D 87
C	ELASTICITIES, AND REFORMAT THE OUTPUT.	D 88
C		D 89
C		D 90

20	DO 35 IREG=1,KREG	D 91
		D 92
C	THIS ROUTINE READS THE INPUT FILES.	D 93
C		D 94

C	CALL INPUTS (IREG)	D 95
	IF (IREG.GT.1) GO TO 30	D 96
	IF (ICON.EQ.1) GO TO 25	D 97
	WRITE (8,65) IDRUN,IDCNTL,ICNS,ICODE,NDATE,TIME(1),TIME(2)	D 98
	WRITE (9,65) IDRUN,IDCNTL,ICNS,ICODE,NDATE,TIME(1),TIME(2)	D 99
	GO TO 30	D 100
25	WRITE (9,55) IVERS,NDATE,TIME(1),TIME(2),IRNNME	D 101
	WRITE (8,60) IDRUN,IDCNTL,ICNS,ICODE,NDATE,TIME(1),TIME(2)	D 102
	WRITE (9,60) IDRUN,IDCNTL,ICNS,ICODE,NDATE,TIME(1),TIME(2)	D 103

C		D 104
C	THIS ROUTINE PUTS OUT PIES-TYPE PRICE & QUANTITY REPORTS, ONE	D 105
C	REGION AFTER ANOTHER, WHICH MUST THEN BE CONCATENATED.	D 106
C		D 107
C	30 CALL RPTPS (IREG,ISCALE)	D 108
C		D 109
C	THIS ROUTINE PUTS OUT PIES ELASTICITY REPORTS TO SEPARATE UNITS,	D 110
C	BY PIES YEAR.	D 111
C		D 112
C	CALL ELASPS (IREG,ISCALE)	D 113
C		D 114
C	THIS PRODUCES A COMPREHENSIVE PRICE/QUANTITY REPORT, INCLUDING	D 115
C	BTU AND PHYSICAL UNIT VALUES, AND GROWTH RATES.	D 116
C		D 117
C	CALL PQR (IREG)	D 118
C		D 119
C	THIS PRODUCES COMPREHENSIVE ELASTICITY REPORTS, INCLUDING	D 120
C	PRICE BY QUANTITY MATRICES, BY SECTOR FOR ALL YEARS.	D 121
C		D 122
C	CALL ELSDEM (IREG)	D 123
C		D 124
C	THIS ROUTINE ACCUMULATES REGIONAL PRICES & QUANTITIES ON EACH	D 125
C	PASS AND ON THE FINAL PASS IT ADDS THEM UP AND CALCULATES	D 126
C	NATIONAL ELASTICITIES. THEN IT CALLS PQR AND ELSDEM AND	D 127
C	PRODUCES NATIONAL VERSIONS OF THOSE REPORTS.	D 128
C		D 129
C	CALL USQELS (IREG)	D 130
C	35 CONTINUE	D 131
C	STOP	D 132
C		D 133
C	40 FORMAT (/1X,I2//3(1X,I2)//1X,I2//1X,I2///4(1X,I1))	D 134
C	45 FORMAT (1X,2A4/1X,2A4/1X,2A4/1X,2A4/1X,2A4)	D 135
C	50 FORMAT (1X,2A4,1X,A2,1X,A2)	D 136
C	55 FORMAT (//1X, 10HUPDATE TO ,2A4, 9H, DATE = ,2A4, 9H, TIME = ,A2	D 137
C	1, 1H:,A2, 20H, DEMPT & EPIES ARE ,2A4/)	D 138
C	60 FORMAT (1X, 48HTHE FOLLOWING INFORMATION CHARACTERIZES THE RUN , 3D	D 139
C	16HUSED TO CALIBRATE THE DEMAND SHIFTS://1X, 7HRD4 IS ,26A4/8X, 5D	D 140
C	2HPRICE,4X, 5HMACRO,4X, 5HPARAM,4X, 5HQINIT,13X, 6HMPGSTD/1X, 1D	D 141
C	37HDFACE CONTROL IS ,2A4, 23H, CONSERVATION FILE IS ,2A4, 16H, CODED	D 142
C	4 IS DATED ,2A4, 8H,DATE = ,2A4, 9H, TIME = ,A2, 1H:,A2/)	D 143
C	65 FORMAT (1X, 48HTHE FOLLOWING INFORMATION CHARACTERIZES THE RUN , 3D	D 144
C	11HFROM WHICH THE SHIFTS ARE MADE://1X, 7HRD4 IS ,26A4/8X, 5HPRICD	D 145
C	2E,4X, 5HMACRO,4X, 5HPARAM,4X, 5HQINIT,13X, 6HMPGSTD/1X, 17HDFAD	D 146
C	3CE CONTROL IS ,2A4, 23H, CONSERVATION FILE IS ,2A4, 16H, CODE IS DD	D 147
C	4ATED ,2A4, 8H,DATE = ,2A4, 9H, TIME = ,A2, 1H:,A2/)	D 148
C	END	D 149

C=====	D 150
C	D 151
C FUNCTION: THIS SUBROUTINE (INPUT) READS INPUT FILES.	D 152
C	D 153
C STATUS SUBROUTINE	D 154
C	D 155
C LANGUAGE: FORTRAN IV	D 156
C	D 157
C REQ. ROUTINES: NONE	D 158
C	D 159
C SYNERGY LABEL: P50	D 160
C	D 161
C LAST UPDATE: OCTOBER 8, 1977	D 162
C	D 163
C=====	D 164
SUBROUTINE INPUTS(IREG)	D 165
COMMON/PQRPT/PTYBTU(43,18),QTYPU(43,18),QTYPUD(43,18),	D 166
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18)	D 167
COMMON/PQENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18),	D 168
1 PRCREG(10,18,18),QTYPTB(10,43,18)	D 169
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3),	D 170
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2),	D 171
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),IShift(4)	D 172
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2)	D 173
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2)	D 174
2 ,IVERSN(2),IRNME(2)	D 175
COMMON/PIES/PTYPS(30,3),PRCPS(18,3)	D 176
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10),	D 177
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4)	D 178
COMMON/PQBASE/PTY(43,18),PRC(18,18),E(18,43,10)	D 179
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11),	D 180
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30),	D 181
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10)	D 182
DATA INYET/0/	D 183
IF (INYET.GT.0) GO TO 5	D 184
INYET=1	D 185
C	D 186
C FIRST READ CONVERSION FACTORS FROM RD4 INPUT FILE CALLED	D 187
C RD4IN.QINIT.A20PRBSE.DATA(FIRST REGIONAL MEMBER).	D 188
C	D 189
READ (10,70) (CFAC(K),K=1,30)	D 190
REWIND 10	D 191
C	D 192
C NOW THE PRICES AND QUANTITIES WHICH ARE THE RESULTS OF RD4	D 193
C CAN BE READ FOR EACH REGION, WHETHER THEY ARE CENSUS REGIONS	D 194
C OR FEA REGIONS. THIS IS A STRAIGHT-FORWARD READING OF THE	D 195
C BASE-CASE REPORT OF RD4.	D 196
C NEXT ALL THE PERTURBED QUANTITIES ARE READ IN ORDER TO	D 197
C CALCULATE NATIONAL ELASTICITIES. THEY ARE READ FROM	D 198
C SUCCESSIVE FILES WHICH CHANGE WITH THE PERTURBATION.	D 199
C	D 200

5	IM=IREG+20	D 201
	READ (IM,75) NMREG	D 202
	READ (IM,80) (NYR{NT} ,NT=1,9)	D 203
	DO 10 K=1,43	D 204
10	READ (IM,85) NMFUEL(K) , (QTY(K,NT) ,NT=1,9)	D 205
	READ (IM,80) (NYR{NT} ,NT=10,18)	D 206
	DO 15 K=1,43	D 207
15	READ (IM,85) NMFUEL(K) , (QTY(K,NT) ,NT=10,18)	D 208
	READ (IM,80) (NYR{NT} ,NT=1,9)	D 209
	DO 20 K=1,18	D 210
20	READ (IM,90) (PRC(K,NT) ,NT=1,9)	D 211
	READ (IM,80) (NYR{NT} ,NT=10,18)	D 212
	DO 25 K=1,18	D 213
25	READ (IM,90) (PRC(K,NT) ,NT=10,18)	D 214
	DO 40 IPR=1,10	D 215
	READ (IM,95) NMREG	D 216
	READ (IM,100) (NYR{NT} ,NT=1,9)	D 217
	DO 30 K=1,43	D 218
30	READ (IM,105) NMFUEL(K) , (QTYPTB (IPR,K,NT) ,NT=1,9)	D 219
	READ (IM,100) (NYR{NT} ,NT=10,18)	D 220
	DO 35 K=1,42	D 221
35	READ (IM,105) NMFUEL(K) , (QTYPTB (IPR,K,NT) ,NT=10,18)	D 222
	READ (IM,110) NMFUEL(43) , (QTYPTB (IPR,43,NT) ,NT=10,18)	D 223
40	CONTINUE	D 224
	REWIND IM	D 225
	DO 45 NT=1,18	D 226
45	NYRR(NT) =NYR{NT} +1900	D 227
C		D 228
C	ZERO OUT ELASTICITY STORAGE ARRAY.	D 229
C		D 230
	DO 50 NT=1,18	D 231
	DO 50 K=1,43	D 232
	DO 50 IPR=1,10	D 233
50	E(NT,K,IPR)=0.0	D 234
C		D 235
C	BEGIN TO READ ELASTICITIES FROM SUBREPORT FILE; READ A	D 236
C	DIFFERENT UNIT FOR EACH REGION.	D 237
C		D 238
	IJ=IREG+30	D 239
	READ (IJ,115) IDRUN,IYBNCH,IPMETH,IEMETH,IFELAS,IFSIC,IPARM,IBMETHD	D 240
	1,IDMETH,IFNHKP	D 241
	IY1PRJ=IYBNCH+1	D 242
	DO 65 IPR=1,10	D 243
	DO 60 I=1,5	D 244
C		D 245
C	LAYOUT OF INPUT FILE IS AS FOLLOWS: ALL RELEVANT SECTOR	D 246
C	ARRAYS FOR FIRST PERTURBATION APPEAR FIRST, THEN FOR SECOND	D 247
C	PERTURBATION, ETC. THUS THIS BRANCH WORKS ITS WAY THROUGH	D 248
C	THE SECTORS FOR EACH PERTURBATION AND DECIDES WHETHER OR	D 249
C	NOT TO READ THE ARRAY. THE SECTORS ARE IN A STANDARD ORDER	D 250
C	AND THUS IF AN ARRAY IS READ THE SECTOR THAT IT REPRESENTS	D 251
C	IS AUTOMATICALLY RECORDED.	D 252
C		D 253

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IF	(IARRAY(I,IPR).EQ.0) GO TO 60	D 254
	READ (IJ,120) NMREG,(NMSEC(I,L),L=1,3)	D 255
	ILS=IELAS(I)	D 256
C		D 257
C	KELAS ASSOCIATES A UNIQUE SET OF ELASTICITIES IN THE	D 258
C	PRODUCT LIST WITH A GIVEN SECTOR	D 259
C	THUS BOTH THE NAMES (NMFUEL) AND, IN CONJUNCTION WITH A	D 260
C	PARTICULAR PERTURBATION, THE ELASTICITIES THEMSELVES, FIND	D 261
C	THEIR PROPER PLACES IN THE RESPECTIVE ARRAYS.	D 262
C		D 263
	DO 55 NT=IY1PRJ,18	D 264
55	READ (IJ,125) (E(NT,KELAS(K,I),IPR),K=1,ILS)	D 265
60	CONTINUE	D 266
65	CONTINUE	D 267
	REWIND IJ	D 268
	RETURN	D 269
C		D 270
70	FORMAT (29(/),29(10X,F10.3/),10X,F10.3)	D 271
75	FORMAT (//////////35X,A4//)	D 272
80	FORMAT (6X,9(9X,I2))	D 273
85	FORMAT (1X,A4,1X,9F11.3)	D 274
90	FORMAT (6X,9F11.3)	D 275
95	FORMAT (35X,A4//)	D 276
100	FORMAT (6X,9(9X,I2))	D 277
105	FORMAT (1X,A4,1X,9F11.3)	D 278
110	FORMAT (1X,A4,1X,9F11.3//////////)	D 279
115	FORMAT (//11X,26A4//14X,I2/21X,I2/21X,I2/68X,10I2/48X,A2/61X,2I2/2D	280
	16X,30I2/25X,30I2/26X,14I2)	D 281
120	FORMAT (29X,A4,2X,3A4//)	D 282
125	FORMAT (6X,13F9.3)	D 283
	END	D 284


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=====D 285
C=====D 286
C D 287
C FUNCTION: THIS SUBROUTINE (RPTPS) PUTS OUT PIES-TYPE D 288
C PRICE AND QUANTITY REPORTS, ONE REGION AFTER D 289
C ANOTHER, WHICH MUST THEN BE CONCATENATED. D 290
C D 291
C STATUS SUBROUTINE D 292
C D 293
C LANGUAGE: FORTRAN IV D 294
C D 295
C REQ. ROUTINES: CONSER D 296
C D 297
C SYNERGY LABEL: P50 D 298
C D 299
C LAST UPDATE: OCTOBER 8, 1977 D 300
C D 301
C=====D 302
SUBROUTINE RPTPS(IREG,ISCALE) D 303
COMMON/PQRPT/PTYBTU(43,18),QTYPU(43,18),QTYPU(43,18), D 304
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18) D 305
COMMON/PQENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18), D 306
1 PRCREG(10,18,18),QTYPTB(10,43,18) D 307
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3), D 308
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2), D 309
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4) D 310
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D 311
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2) D 312
2 ,IVERSN(2),IRNME(2) D 313
COMMON/PIES/QTYP(30,3),PRCPS(18,3) D 314
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D 315
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4) D 316
COMMON/PQBASE/PTY(43,18),PRC(18,18),E(18,43,10) D 317
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11), D 318
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D 319
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10) D 320
C D 321
C FIRST CONVERT ALL PRICES AND QUANTITIES TO DOLLARS PER PHYSICAL D 322
C UNITS AND PHYSICAL UNITS PER DAY FOR PIES INPUT. D 323
C D 324
DO 5 K=1,30 D 325
DO 5 NT=1,3 D 326
5 QTYPS(K,NT)=QTY(K,IYR(NT))/CFAC(K)/.365 D 327
DO 10 NT=1,3 D 328
DO 10 K=1,18 D 329
10 PRCPS(K,NT)=PRC(K,IYR(NT))*CFAC(K) D 330
C D 331
C CALL THE SUBROUTINE TO DO EXOGENOUS SHIFTS OF THE DEMAND CURVES. D 332
C THE VECTOR ISHIFT CONTAINS ZEROS AND ONES TO CONTROL WHICH SHIFTS D 333
C ARE TO BE DONE. D 334
C D 335
IF (ISCALE.EQ.0) GO TO 55 D 336
READ (2,100) ((SHBOIL(KK,LL),LL=1,4),KK=1,5)

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=====
WRITE (6,105) ((SHBOIL(KK,LL),KK=1,5),LL=1,4)
DO 15 L=1,4
DO 15 K=1,5
15 SHBOIL(K,L)=SHBOIL(K,L)*.01
DO 35 L=1,4
LK=5-L
IF (SHBOIL(5,LK).LE.QTY(IBOIL(L),2)) GO TO 25
DO 20 K=1,5
20 SHBOIL(K,LK)=(SHBOIL(K,LK)/SHBOIL(5,LK))*QTY(IBOIL(L),2)
25 DO 30 K=1,4
WRITE (6,110) IBOIL(L),QTY(IBOIL(K),2)
30 SHBOIL(K,LK)=SHBOIL(K,LK)/QTY(IBOIL(L),2)
35 SHBOIL(5,LK)=(QTY(IBOIL(L),2)-SHBOIL(5,LK))/QTY(IBOIL(L),2)
DO 40 L=1,4
SHBOIL(5,L)=1.0
DO 40 K=1,4
40 SHBOIL(K,L)=0.0
DO 50 NT=1,3
DO 50 L=1,4
DO 45 K=1,4
LK=5-L
45 QBOIL(KBOIL(K,L),NT)=QTYPES(IBOIL(L),NT)*SHBOIL(K,LK)
50 QTYPES(IBOIL(L),NT)=QTYPES(IBOIL(L),NT)*SHBOIL(5,LK)
55 IF (ICON.NE.1) CALL CONSER (IREG)
DO 60 NT=1,3
DO 60 L=1,4
DO 60 K=1,4
60 PBOIL(KBOIL(K,L),NT)=PRCPS(IBOIL(L),NT)
WRITE (6,115) ((SHBOIL(KK,LL),KK=1,5),LL=1,4)
C
C NOW PUT OUT DEMAND POINT REPORT FOR THIRTY BASIC FUELS, EACH
C COLUMN REPRESENTING THE NEXT YER (80, 85 OR 90); THEN DO
C EIGHTEEN RETAIL PRICES IN THE SAME WAY TO SEPARATE UNIT; THUS
C ALL REGIONS WILL ACCUMULATE ON EACH UNIT AS THE LOOP IS
C EXECUTED. LATER QUANTITY AND PRICE FILES CAN BE CONCATENATED
C TO PRODUCE A DEMAND POINT REPORT.
C
WRITE (45,120) NMREG, (IDRUN(LL),LL=1,11),IDCNTL,NDATE,TIME(1),TIMED
1(2), (NYRR(IYR(NT)),NT=1,3)
DO 65 K=1,18
65 WRITE (45,130) NMFUEL(K), (QTYPES(K,NT),NT=1,3)
IF (ISCALE.EQ.0) GO TO 75
DO 70 K=1,16
70 WRITE (45,130) NMBOIL(K), (QBOIL(K,NT),NT=1,3)
75 DO 80 K=19,30
80 WRITE (45,130) NMFUEL(K), (QTYPES(K,NT),NT=1,3)
WRITE (46,125) NMREG, (IDRUN(LL),LL=1,11),IDCNTL,NDATE,TIME(1),TIMED
1(2), (NYRR(IYR(NT)),NT=1,3)
DO 85 K=1,18
85 WRITE (46,135) NMFUEL(K), (PRCPS(K,NT),NT=1,3)
IF (ISCALE.EQ.0) GO TO 95
DO 90 K=1,16
=====

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90 WRITE (46,135) NMBOIL(K), (PBOIL(K,NT), NT=1,3)           D 389
95 RETURN                                                     D 390
C                                                           D 391
100 FORMAT (//////////5(10X,4F13.0)/////////)                D 392
105 FORMAT (1X,5F8.0)                                         D 393
110 FORMAT (1X,I4,F10.2)                                       D 394
115 FORMAT (1X,5F8.4)                                         D 395
120 FORMAT (1X, 28HDEMAND POINT QUANTITIES FOR ,A4, 2H, ,11A4, 1H ,2D 396
    1A4, 9H, DATE = ,2A4, 9H, TIME = ,A2, 1H: ,A2/5X,3(16X,I4)) D 397
125 FORMAT (1X, 24HDEMAND POINT PRICES FOR ,A4, 2H, ,11A4, 1H ,2A4, D 398
    1 9H, DATE = ,2A4, 9H, TIME = ,A2, 1H: ,A2/5X,3(16X,I4)) D 399
130 FORMAT (1X,A4,4X,3F20.6)                                   D 400
135 FORMAT (1X,A4, 1HP,3X,3F20.2)                             D 401
    END                                                         D 402

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C=====D 403
C                                     D 404
C FUNCTION:      THIS SUBROUTINE (ELASPS) PUTS OUT PIES      D 405
C                ELASTICITY REPORTS TO SEPARATE UNITS, BY PIES D 406
C                YEARS.                                       D 407
C                                                         D 408
C STATUS         SUBROUTINE                                  D 409
C                                                         D 410
C LANGUAGE:      FORTRAN IV                                  D 411
C                                                         D 412
C REQ. ROUTINES: NONE                                         D 413
C                                                         D 414
C SYNERGY LABEL: P50                                          D 415
C                                                         D 416
C LAST UPDATE:   OCTOBER 8,1977                               D 417
C                                                         D 418
C=====D 419
SUBROUTINE ELASPS(IREG,ISCALE)                                D 420
COMMON/PQRPT/PTYBTU(43,18),QTYPU(43,18),QTYPUD(43,18),      D 421
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18)           D 422
COMMON/PQENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18), D 423
1 PRCREG(10,18,18),QTYPTB(10,43,18)                         D 424
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3),  D 425
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2),    D 426
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4)      D 427
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D 428
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNL(2) D 429
2 ,IVERSN(2),IRNNME(2)                                       D 430
COMMON/PIES/QTYP(30,3),PRCPS(18,3)                           D 431
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D 432
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4)                            D 433
COMMON/PQBASE/PTY(43,18),PRC(18,18),E(18,43,10)            D 434
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11),              D 435
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D 436
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10)              D 437
DIMENSION IAVGE(4,8),IMKPS(8),KMKPS(8),PMRKP(10,18),        D 438
1 ELPIES(3,8,10),PRPIES(3,8),PMPIES(3,8),QPIES(3,8)         D 439
DATA IAVGE/1,5,9,0,2,6,10,0,3,7,11,16,8,12,18,0,4,13,0,0,    D 440
1 15,0,0,0,17,0,0,0,14,0,0,0/                                D 441
DO 40 I=1,3                                                    D 442
IWRT=I+41                                                       D 443
DO 5 IPR=1,10                                                    D 444
DO 5 K=1,4                                                         D 445
DO 5 L=1,4                                                         D 446
5 EBOIL(I,KBOIL(K,L),IPR)=E(IYR(I),IBOIL(L),IPR)              D 447
DO 10 IPR=1,10                                                    D 448
DO 10 K=1,4                                                         D 449
DO 10 L=1,4                                                         D 450
10 EBOIL(I,KBOIL(K,L),IPR)=0.0                                  D 451
C                                                         D 452
C THE FULL ARRAYS FOR THE PIES INTERFACE ARE WRITTEN OUT,      D 453
C ONE REGION AT A TIME, TO A COMMON UNIT.                      D 454

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C	A SEPARATE UNIT IS USED FOR EACH YEAR CREATED.	D 455
C	WRITE (IWRT,45) NMREG, (IDRUN(LL),LL=1,11), IDCNTL, NDATE, TIME(1), TIME(2), NYRR(IYR(I))	D 456 D 457
	WRITE (IWRT,50) (NMFUEL(KLAS(KRORDR(IPR))), IPR=1,10)	D 458 D 459
	DO 15 K=1,18	D 460
15	WRITE (IWRT,55) NMFUEL(K), (E(IYR(I),K,KRORDR(IPR))), IPR=1,10)	D 461
	IF (ISCALE.EQ.0) GO TO 25	D 462
	DO 20 K=1,16	D 463
20	WRITE (IWRT,55) NMBOIL(K), (EBOIL(I,K,KRORDR(IPR))), IPR=1,10)	D 464
25	DO 30 K=19,30	D 465
30	WRITE (IWRT,55) NMFUEL(K), (E(IYR(I),K,KRORDR(IPR))), IPR=1,10)	D 466
	IF (ISCALE.NE.0) GO TO 40	D 467
	DO 35 K=31,38	D 468
35	WRITE (IWRT,55) NMFUEL(K), (E(IYR(I),K,KRORDR(IPR))), IPR=1,10)	D 469
40	CONTINUE	D 470
	RETURN	D 471
C		D 472
45	FORMAT (1X, 35HREGIONAL UNSCALED ELASTICITIES FOR ,A4, 2H, ,11A4,	D 473
1	1H ,2A4, 8H,DATE = ,2A4, 9H, TIME = ,A2, 1H:,A2, 2H, ,I4)	D 474
50	FORMAT (7X,10(3X,A4, 1HP))	D 475
55	FORMAT (1X,A4,2X,10F8.3)	D 476
	END	D 477

```

C=====D 478
C                                     D 479
C FUNCTION:      THIS SUBROUTINE (PQR) PRODUCES A COMPREHENSIVE D 480
C                PRICE/QUANTITY REPORT, INCLUDING BTU AND D 481
C                PHYSICAL UNIT VALUES AND GROWTH RATES. D 482
C                                     D 483
C STATUS        SUBROUTINE D 484
C                                     D 485
C LANGUAGE:      FORTRAN IV D 486
C                                     D 487
C REQ. ROUTINES: SUM D 488
C                                     D 489
C SYNERGY LABEL: P50 D 490
C                                     D 491
C LAST UPDATE:   OCTOBER 8, 1977 D 492
C                                     D 493
C=====D 494
C      SUBROUTINE PQR(IUNIT) D 495
C      IM=IUNIT+85 D 496
C      COMMON/PQRPT/PTYBTU(43,18),QTYPU(43,18),QTYPD(43,18). D 497
C      1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18) D 498
C      COMMON/PQENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18). D 499
C      1 PRCREG(10,18,18),QTYPTB(10,43,18) D 500
C      COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3), D 501
C      1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2), D 502
C      2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),IShift(4) D 503
C      COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D 504
C      1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2) D 505
C      2 ,IVERSN(2),IRNME(2) D 506
C      COMMON/PIES/QTYP(30,3),PRCPS(18,3) D 507
C      COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D 508
C      1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4) D 509
C      COMMON/PQBASE/PTY(43,18),PRC(18,18),E(18,43,10) D 510
C      COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11), D 511
C      1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D 512
C      2 STORER(6,3,10),PSTORE(6,3,10),ISWICH(6,3,10) D 513
C                                     D 514
C      THIS FIRST PIECE OF CODE MERELY CONVERTS THE THIRTY BASIC D 515
C      FUELS FROM BTUS TO P.U./YEAR AND THEN TO P.U./DAY. AFTER D 516
C      EACH STEP THE SUM FUNCTION IS CALLED AND THE LAST THIRTEEN D 517
C      AGGREGATIONS ARE FILLED IN. THESE ARE THEN STORED IN THE D 518
C      APPROPRIATELY NAMED ARRAYS. THE PRICE ARRAY IS HANDLED THE D 519
C      SAME WAY, BEING CONVERTED FROM $/BTU TO $/P.U. D 520
C                                     D 521
C      DO 40 NT=1,18 D 522
C      DO 5 K=1,43 D 523
C      5 QTYBTU(K,NT)=QTY(K,NT) D 524
C      DO 10 K=1,30 D 525
C      10 QTY(K,NT)=QTY(K,NT)/CFAC(K) D 526
C      DO 15 K=1,13 D 527
C      K30=K+30 D 528
C      15 QTY(K30,NT)=SUM(K,NT) D 529
C      DO 20 K=1,43 D 530

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=====
20 QTYPU(K,NT)=QTY(K,NT) D 531
DO 25 K=1,30 D 532
25 QTY(K,NT)=QTY(K,NT)/.365 D 533
DO 30 K=1,13 D 534
K30=K+30 D 535
30 QTY(K30,NT)=SUM(K,NT) D 536
DO 35 K=1,43 D 537
35 QTYPU(K,NT)=QTY(K,NT) D 538
DO 40 K=1,43 D 539
40 QTY(K,NT)=QTYBTU(K,NT) D 540
DO 45 NT=1,18 D 541
DO 45 K=1,18 D 542
45 PRCPU(K,NT)=PRC(K,NT)*CFAC(K) D 543
C D 544
C NOW GROWTH RATES ARE COMPUTED, USING THE BASE YEAR IYBNCH D 545
C AND COMPUTING YEARLY COMPOUND RATES OUT TO 1990. D 546
C D 547
DO 70 NT=IY1PRJ,18 D 548
YRDIFF=NT-IYBNCH D 549
DO 55 K=1,43 D 550
IF ((QTYBTU(K,IYBNCH).LE.0.0).OR.(QTYBTU(K,NT).LE.0.0)) GO TO 50 D 551
QGROW(K,NT)=((QTYBTU(K,NT)/QTYBTU(K,IYBNCH))**(1./YRDIFF)) D 552
1 -1.)*100. D 553
GO TO 55 D 554
50 QGROW(K,NT)=0.0 D 555
55 CONTINUE D 556
DO 65 K=1,18 D 557
IF ((PRC(K,IYBNCH).LE.0.0).OR.(PRC(K,NT).LE.0.0)) GO TO 60 D 558
PGROW(K,NT)=((PRC(K,NT)/PRC(K,IYBNCH))**(1./YRDIFF))-1.)*100. D 559
GO TO 65 D 560
60 PGROW(K,NT)=0.0 D 561
65 CONTINUE D 562
70 CONTINUE D 563
C D 564
C THE WRITING OF THE REPORT FOLLOWS. FIRTS QUANTITIES AND THEN D 565
C PRICES. FOR A SECTOR, A TABLE OF BTUS, P.U.S/YEAR AND P.U.S/ D 566
C DAY ARE WRITTEN, FOLLOWED BY A GROWTH RATE TABLE. THEN THE D 567
C NEXT SECTOR IS DONE AND SO ON. PRICES ARE SIMILAR EXCEPT D 568
C THERE ARE NO SECTORAL BREAKDOWNS. D 569
C D 570
WRITE (IM,110) NMREG,(IDRUN(LL),LL=1,11),IDCNTL,NDATE,TIME(1),TIMED 571
1(2),IYBNCH,IPMETH,IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH,IFNHKP D 572
DO 90 I=1,5 D 573
ILS=IELAS(I) D 574
KLS=IELAS(I)-1 D 575
WRITE (IM,115) NMREG,{NMSEC(I,L),L=1,3} D 576
WRITE (IM,120) {NMFUEL(KELAS(K,I)),K=1,ILS} D 577
DO 75 NT=1,18 D 578
75 WRITE (IM,125) NYRR(NT),{QTYBTU(KELAS(K,I),NT),K=1,ILS} D 579
WRITE (IM,130) NMREG,{NMSEC(I,L),L=1,3} D 580
WRITE (IM,120) {NMFUEL(KELAS(K,I)),K=1,KLS} D 581
DO 80 NT=1,18 D 582
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80 WRITE (IM,125) NYRR(NT), (QTYPU(KELAS(K,I),NT),K=1,KLS) D 583
   WRITE (IM,135) NMREG, (NMSEC(I,L),L=1,3) D 584
   WRITE (IM,120) (NMFUEL(KELAS(K,I)),K=1,KLS) D 585
   DO 85 NT=1,18 D 586
85 WRITE (IM,125) NYRR(NT), (QTYPU(KELAS(K,I),NT),K=1,KLS) D 587
   WRITE (IM,140) NMREG, (NMSEC(I,L),L=1,3) D 588
   WRITE (IM,120) (NMFUEL(KELAS(K,I)),K=1,ILS) D 589
   DO 90 NT=1,18 D 590
90 WRITE (IM,145) NYR(IYBNCH), NYR(NT), (QGROW(KELAS(K,I),NT),K=1,ILS) D 591
   WRITE (IM,150) NMREG D 592
   WRITE (IM,155) (NMFUEL(K),K=1,18) D 593
   DO 95 NT=1,18 D 594
95 WRITE (IM,160) NYRR(NT), (PRC(K,NT),K=1,18) D 595
   WRITE (IM,165) NMREG D 596
   WRITE (IM,155) (NMFUEL(K),K=1,18) D 597
   DO 100 NT=1,18 D 598
100 WRITE (IM,160) NYRR(NT), (PRCPU(K,NT),K=1,18) D 599
   WRITE (IM,170) NMREG D 600
   WRITE (IM,155) (NMFUEL(K),K=1,18) D 601
   DO 105 NT=1,18 D 602
105 WRITE (IM,175) NYR(IYBNCH), NYR(NT), (PGROW(K,NT),K=1,18) D 603
   REWIND IM D 604
   RETURN D 605

```

C

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110 FORMAT (1H1, 43HREGIONAL DEMAND INTERFACE MODEL FOR REGION ,A4//1X D 607
   1, 10HTHIS IS A ,11A4, 1H ,2A4, 13H RUN, DATE = ,2A4, 9H, TIME = D 608
   2,A2, 1H:,A2//1X, 13HBENCH YEAR = ,I2/1X, 20HPRICE PATH METHOD = ,D 609
   3I2/1X, 20HELASTICITY METHOD = ,I2/1X, 20HPRICE PERTURBATIONS , 47HD 610
   4DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ,10I2/1X, 48HWAS IND 611
   5DUSTY-SPECIFIC INDUSTRIAL MODEL USED ? - ,A2/1X, 60HTRANS MODEL PD 612
   6PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ,2I2/1X, 25HFUEL IND 613
   7TERCEPT METHODS - ,30I2/1X, 14HFUEL INDEXING , 10HMETHODS - ,30I2/D 614
   81X, 25HGAS REG NORMALIZATIONS - ,14I2) D 615
115 FORMAT (1H1,49X, 28HREGIONAL QUANTITY ARRAY FOR ,A4//57X,3A4, 7H D 616
   1SECTOR//57X, 17HTRILLIONS OF BTUS//) D 617
120 FORMAT (/8X,13(5X,A4)) D 618
125 FORMAT (/1X,I4,3X,13F9.2) D 619
130 FORMAT (1H1,49X, 28HREGIONAL QUANTITY ARRAY FOR ,A4//57X,3A4, 7H D 620
   1SECTOR//48X, 36HMMBL, MMCF, MMKWH & MMTON PER YEAR//) D 621
135 FORMAT (1H1,49X, 28HREGIONAL QUANTITY ARRAY FOR ,A4//57X,3A4, 7H D 622
   1SECTOR//50X, 31HMBL, MMCF, MMKWH & MTON PER DAY//) D 623
140 FORMAT (1H1,45X, 35HREGIONAL QUANTITY GROWTH RATES FOR ,A4//57X,3AD 624
   14, 7H SECTOR//60X, 12HANNUAL BASIS//) D 625
145 FORMAT (/1X,I2, 1H-,I2,2X,13F9.2) D 626
150 FORMAT (1H1,52X, 25HREGIONAL PRICE ARRAY FOR ,A4//60X, 11HALL SECTD 627
   1ORS//54X, 24HDOLLARS PER MILLION BTUS//) D 628
155 FORMAT (/6X,18(2X,A4, 1HP)) D 629
160 FORMAT (/1X,I4,1X,18F7.2) D 630
165 FORMAT (1H1,52X, 25HREGIONAL PRICE ARRAY FOR ,A4//60X, 11HALL SECTD 631
   1ORS//53X, 25HDOLLARS PER PHYSICAL UNIT//) D 632
170 FORMAT (1H1,48X, 32HREGIONAL PRICE GROWTH RATES FOR ,A4//60X, 11HAD 633
   1LL SECTORS//60X, 12HANNUAL BASIS//) D 634
175 FORMAT (/1X,I2, 1H-,I2,18F7.2) D 635

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END

D 636

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C=====D 637
C D 638
C FUNCTION: THIS SUBROUTINE (ELSDM) PRODUCES COMPREHENSIVE D 639
C ELASTICITY REPORTS, INCLUDING PRICE BY D 640
C QUANTITY MATRICES, BY SECTOR FOR ALL YEARS. D 641
C D 642
C STATUS SUBROUTINE D 643
C D 644
C LANGUAGE: FORTRAN IV D 645
C D 646
C REQ. ROUTINES: NONE D 647
C D 648
C SYNERGY LABEL: P50 D 649
C D 650
C LAST UPDATE: OCTOBER 8, 1977 D 651
C D 652
C=====D 653
SUBROUTINE ELSDM(IUNIT) D 654
IJ=IUNIT+70 D 655
COMMON/PQRPT/QTBTU(43,18),QTPU(43,18),QTPUD(43,18), D 656
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18) D 657
COMMON/POENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18), D 658
1 PRCREG(10,18,18),QTYPTB(10,43,18) D 659
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3), D 660
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2), D 661
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4) D 662
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D 663
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2) D 664
2 ,IVERSN(2),IRNME(2) D 665
COMMON/PIES/QTYP(30,3),PRCPS(18,3) D 666
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D 667
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4) D 668
COMMON/PQBASE/QTYP(43,18),PRC(18,18),E(18,43,10) D 669
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11), D 670
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D 671
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10) D 672
WRITE(IJ,20) NMREG,(IDRUN(LL),LL=1,11),IDCNTL,NDATE,TIME(1),TIME(D 673
12),IYBNCH,IPMETH,IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH,IFNHKP D 674
DO 15 NT=IY1PRJ,18 D 675
DO 10 I=1,5 D 676
C D 677
C WRITE OUT SECTORAL ARRAY FOR EACH YEAR IN TURN, BEGINNING D 678
C WITH FIRST PROJECTION YEAR. WRITE OUT ONE SECTOR AT A TIME, D 679
C ALL TO SAME UNIT. EACH REGION WILL BE ON A SEPARATE UNIT. D 680
C UNIT NUMBERS WILL BE CONTROLLED FROM MAIN PROGRAM. D 681
C D 682
WRITE(IJ,25) NMREG,(NMSEC(I,L),L=1,3),NYRR(NT) D 683
ILS=IELAS(I) D 684
WRITE(IJ,30) (NMFUEL(KELAS(K,I)),K=1,ILS) D 685
DO 5 IPR=1,10 D 686
IF(IARRAY(I,IPR).EQ.0) GO TO 5 D 687
WRITE(IJ,35) NMFUEL(KLAS(IPR)),(E(NT,KELAS(K,I),IPR),K=1,ILS) D 688

```

5	CONTINUE	D 689
10	CONTINUE	D 690
15	CONTINUE	D 691
	REWIND IJ	D 692
	RETURN	D 693
		D 694
C		
20	FORMAT (1H1, 43HREGIONAL DEMAND INTERFACE MODEL FOR REGION ,A4//1XD	695
	1, 10HTHIS IS A ,11A4, 1H ,2A4, 13H RUN, DATE = ,2A4, 9H, TIME = D	696
	2,A2, 1H:,A2//1X, 13HBENCH YEAR = ,I2/1X, 20HPRICE PATH METHOD = ,D	697
	3I2/1X, 20HELASTICITY METHOD = ,I2/1X, 20HPRICE PERTURBATIONS , 47HD	698
	4DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ,10I2/1X, 48HWAS IND	699
	5DUSTY-SPECIFIC INDUSTRIAL MODEL USED ? - ,A2/1X, 60HTRANS MODEL PD	700
	6PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ,2I2/1X, 25HFUEL IND	701
	7TERCEPT METHODS - ,30I2/1X, 14HFUEL INDEXING , 10HMETHODS - ,30I2/D	702
	81X, 25HGAS REG NORMALIZATIONS - ,14I2)	D 703
25	FORMAT (1H1,5X, 26HREGIONAL ELASTICITIES FOR ,A4, 2H, ,3A4, 9H SD	704
	1ECTOR, ,I4//)	D 705
30	FORMAT (/8X,13(5X,A4))	D 706
35	FORMAT (/1X,A4, 1HP,2X,13F9.3)	D 707
	END	D 708

```

=====D 709
C D 710
C FUNCTION: THIS SUBROUTINE (USQELS) ACCUMULATES PRICES AND D 711
C QUANTITIES INTO NATIONAL ARRAYS AS EACH REGION D 712
C IS PROCESSED BY THE PROGRAM. WHEN THE LAST D 713
C REGION IS READ, IT CALCULATES THE WEIGHTED- D 714
C AVERAGE PRICES AND THEN GOES ON TO CALCULATE D 715
C THE NATIONAL ELASTICITIES. D 716
C D 717
C STATUS SUBROUTINE D 718
C D 719
C LANGUAGE: FORTRAN IV D 720
C D 721
C REQ. ROUTINES: CONCAL, WRITER, PQR, ELSDEM D 722
C D 723
C SYNERGY LABEL: P50 D 724
C D 725
C LAST UPDATE: OCTOBER 8, 1977 D 726
C D 727
C=====D 728
SUBROUTINE USQELS(IREG) D 729
COMMON/PQRPT/PTYBTU(43,18),QTYPU(43,18),QTYPD(43,18), D 730
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18) D 731
COMMON/PQENAT/PTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18), D 732
1 PRCREG(10,18,18),QTYPTB(10,43,18) D 733
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3), D 734
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2), D 735
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4) D 736
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D 737
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2) D 738
2 ,IVERSN(2),IRNME(2) D 739
COMMON/PIES/PTYPS(30,3),PRCPS(18,3) D 740
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D 741
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4) D 742
COMMON/PQBASE/PTY(43,18),PRC(18,18),E(18,43,10) D 743
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11), D 744
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D 745
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10) D 746
DO 15 NT=1,18 D 747
DO 5 K=1,43 D 748
QTYNAT(K,NT)=QTYNAT(K,NT)+QTY(K,NT) D 749
DO 5 IPR=1,10 D 750
5 QNTPTB(IPR,K,NT)=QNTPTB(IPR,K,NT)+QTYPTB(IPR,K,NT) D 751
DO 10 K=1,30 D 752
10 QTYREG(IREG,K,NT)=QTY(K,NT) D 753
DO 15 K=1,18 D 754
15 PRCREG(IREG,K,NT)=PRC(K,NT) D 755
DO 20 NT=1,3 D 756
DO 20 K=1,30 D 757
QPSBTU(K,NT,11)=QPSBTU(K,NT,11)+QPSBTU(K,NT,IREG) D 758
HOOKUP(11,NT,K)=HOOKUP(11,NT,K)+HOOKUP(IREG,NT,K) D 759
CONSAV(K,NT,11)=CONSAV(K,NT,11)+CONSAV(K,NT,IREG) D 760
SOLGEO(K,NT,11)=SOLGEO(K,NT,11)+SOLGEO(K,NT,IREG) D 761
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20 BOILSH(K,NT,11)=BOILSH(K,NT,11)+BOILSH(K,NT,IREG)
C
C   THIS BRANCH BYPASSES ALL THE NATIONAL ARITHMETIC UNLESS THE
C   LAST REGION IS BEING PROCESSED.
C
C   IF (IREG.LT.KREG) GO TO 80
C   DO 25 NT=1,18
C   DO 25 K=1,18
25 PRC(K,NT)=0.0
C   DO 35 NT=1,18
C   DO 30 K=1,18
C   DO 30 J=1,KREG
30 PRC(K,NT)=PRCREG(J,K,NT)*(QTYREG(J,K,NT)/QTYNAT(K,NT))+PRC(K,NT)
C   DO 35 K=1,43
35 QTY(K,NT)=QTYNAT(K,NT)
C
C   CALCULATE NATIONAL ELASTICITIES BASED ON THE ACCUMULATED
C   QUANTITIES WHICH ARE NOW IN QTYNAT AND QNTPTB.
C
C   RANGE=18.-IYBNCH
C   RANGER=8.-IYBNCH
C   DO 75 NT=IY1PRJ,18
C   IF ((IPMETH.EQ.2.AND.NT.GE.8).OR.IPMETH.EQ.0) GO TO 45
C   IF (IPMETH.EQ.2.AND.NT.LT.8) GO TO 40
C   PFAC1=(1.1**((NT-IYBNCH)/RANGE)+1.)/(1.1**((NT-IYBNCH)/RANGE)-1.)
C   PFAC2=ALOG(1.1**((NT-IYBNCH)/RANGE))
C   GO TO 50
40 PFAC1=(1.1**((NT-IYBNCH)/RANGER)+1.)/(1.1**((NT-IYBNCH)/RANGER)
1 -1.)
C   PFAC2=ALOG(1.1**((NT-IYBNCH)/RANGER))
C   GO TO 50
45 PFAC1=21.
C   PFAC2=ALOG(1.1)
50 DO 70 K=1,43
C   DO 65 IPR=1,10
C   QX=QTYNAT(K,NT)
C   Q1=QNTPTB(IPR,K,NT)
C   IF (IEMETH.EQ.0) GO TO 55
C   IF (QX.EQ.0.0) GO TO 60
C   E(NT,K,IPR)=(ALOG(Q1/QX))/PFAC2
C   GO TO 65
55 IF (QX+Q1.EQ.0.0) GO TO 60
C   E(NT,K,IPR)=((Q1-QX)/(Q1+QX))*PFAC1
C   GO TO 65
60 E(NT,K,IPR)=0.0
65 CONTINUE
70 CONTINUE
75 CONTINUE
C
C   NOW READ NAME OF NATIONAL REGION (U.S.) OFF PARAMETER FILE
C   AND CALL TWO OUTPUT FORMATTING ROUTINES TO OPERATE ON
C   NATIONAL ARRAYS.
C

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KTREG=KREG+1	D 815
READ (1,85) NMREG	D 816
REWIND 1	D 817
IF (ICON.EQ.1) CALL CONCAL	D 818
IF (ICON.NE.1) CALL WRITER	D 819
CALL PQR (KTREG)	D 820
CALL ELSDEM (KTREG)	D 821
80 RETURN	D 822
C	D 823
85 FORMAT (/1X,A4)	D 824
END	D 825

```

C=====D 826
C D 827
C FUNCTION: THIS FUNCTION SUBROUTINE (SUM) AGGREGATES ACROSS D 828
C FUELS AND SECTORS (FOR A GIVEN REGION). D 829
C D 830
C STATUS SUBROUTINE D 831
C D 832
C LANGUAGE: FORTRAN IV D 833
C D 834
C REQ. ROUTINES: NONE D 835
C D 836
C SYNERGY LABEL: P50 D 837
C D 838
C LAST UPDATE: OCTOBER 8,1977 D 839
C D 840
C=====D 841
FUNCTION SUM(K,NT) D 842
COMMON/PQRPT/QTBTU(43,18),QTYPU(43,18),QTYUD(43,18), D 843
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18) D 844
COMMON/PQENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18), D 845
1 PRCREG(10,18,18),QTYPTB(10,43,18) D 846
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3), D 847
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2), D 848
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4) D 849
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D 850
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2) D 851
2 ,IVERSN(2),IRNNME(2) D 852
COMMON/PIES/QTYP(30,3),PRCPS(18,3) D 853
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D 854
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4) D 855
COMMON/PQBASE/QT(43,18),PRC(18,18),E(18,43,10) D 856
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11), D 857
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D 858
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10) D 859
DIMENSION LSUM(13),ISUM(12,13) D 860
DATA ISUM/1,5,9,19,8*0,2,6,10,20,8*0,3,7,11,16,8*0,8,12, D 861
1 18,9*0,4,13,21,22,23,24,6*0,25,26,27,9*0,15,17,33,34,35, D 862
2 36,6*0,14,28,29,30,8*0,1,2,3,4,28,7*0,5,6,7,8,21,27,6*0, D 863
3 9,10,11,12,13,14,20,23,24,25,26,30,15,16,17,18,19,22,29, D 864
4 5*0,31,32,37,38,8*0/ D 865
DATA LSUM/4,4,4,3,6,3,6,4,5,6,12,7,4/ D 866
SUM=0.0 D 867
L=LSUM(K) D 868
DO 5 I=1,L D 869
5 SUM=SUM+QTY(ISUM(I,K),NT) D 870
RETURN D 871
END D 872

```

```

=====D 873
C=====D 874
C D 875
C FUNCTION: THIS SUBPROGRAM (BLOCK DATA) ENTERS DATA FOR D 876
C VARIABLES KELAS, IELAS, IARRAY, KLAS, KRORDR, KBOIL D 877
C AND NMBOIL. D 878
C D 879
C STATUS SUBPROGRAM D 880
C D 881
C LANGUAGE: FORTRAN IV D 882
C D 883
C REQ. ROUTINES: NONE D 884
C D 885
C SYNERGY LABEL: P50 D 886
C D 887
C LAST UPDATE: OCTOBER 8, 1977 D 888
C D 889
C=====D 890
BLOCK DATA D 891
COMMON/PQRPT/QTBTU(43,18),QTPU(43,18),QTPUD(43,18), D 892
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18) D 893
COMMON/PQENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18), D 894
1 PRCREG(10,18,18),QTYPTB(10,43,18) D 895
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3), D 896
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2), D 897
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4) D 898
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D 899
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2) D 900
2 ,IVERSN(2),IRNME(2) D 901
COMMON/PIES/QTYP(30,3),PRCPS(18,3) D 902
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D 903
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4) D 904
COMMON/PQBASE/QT(43,18),PRC(18,18),E(18,43,10) D 905
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11), D 906
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D 907
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10) D 908
DATA KELAS/1,2,3,4,28,39,7*0,5,6,7,8,21,27,40,6*0,9,10, D 909
1 11,12,13,14,20,23,24,25,26,30,41,15,16,18,17,19,22,29, D 910
2 42,5*0,15,31,32,33,34,35,17,38,36,30,37,43,0/ D 911
DATA IELAS/6,7,13,8,12/ D 912
DATA IARRAY/0,1,0,5*1,0,4*2,0,4*3,2,4,0,4,4,3,5,4,0,5,0,6, D 913
1 3*0,4,7,2*0,6,0,8,4*0,9,5,5,7,5,10/ D 914
DATA KLAS/15,31,32,33,34,35,17,38,37,43/ D 915
DATA KRORDR/2,3,4,5,6,8,1,7,9,10/ D 916
DATA KBOIL/1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16/ D 917
DATA IBOIL/10,11,12,14/ D 918
DATA NMBOIL/'NGG1','NGG2','NGG3','NGG4','DFD1','DFD2', D 919
1 'DFD3','DFD4','RFR1','RFR2','RFR3','RFR4','CLC1', D 920
2 'CLC2','CLC3','CLC4'/ D 921
END

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C=====D 922
C D 923
C FUNCTION: THIS SUBROUTINE (CONCAL) READS ALL EXOGENOUS D 924
C SHIFTS TO BE APPLIED TO DEMAND QUANTITIES. D 925
C IT WILL GENERATE PERCENTAGE DECREMENTS TO BE WRITTEN D 926
C OUT TO A TEMPORARY FILE AND READ BACK IN TO THE D 927
C SECOND DFACE VERSION IN A SUBSEQUENT JOB STEP. THE D 928
C CATEGORIES OF SHIFTS ARE THE FOLLOWING: D 929
C 1) CONSERVATION SHIFTS D 930
C 2) SOLAR AND GEOTHERMAL SHIFTS D 931
C 3) BOILER SHIFTS D 932
C D 933
C STATUS SUBROUTINE D 934
C D 935
C LANGUAGE: FORTRAN IV D 936
C D 937
C REQ. ROUTINES: NONE D 938
C D 939
C SYNERGY LABEL: P50 D 940
C D 941
C LAST UPDATE: OCTOBER 8, 1977 D 942
C D 943
C=====D 944
SUBROUTINE CONCAL D 945
COMMON/PQRPT/PTYBTU(43,18),QTYPU(43,18),QTYPD(43,18), D 946
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18) D 947
COMMON/PQENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18), D 948
1 PRCREG(10,18,18),QTYPTB(10,43,18) D 949
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3), D 950
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2), D 951
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4) D 952
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D 953
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2) D 954
2 ,IVERSN(2),IRNME(2) D 955
COMMON/PIES/QTYP(30,3),PRCPS(18,3) D 956
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D 957
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4) D 958
COMMON/PQBASE/PTY(43,18),PRC(18,18),E(18,43,10) D 959
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11), D 960
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D 961
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10) D 962
DIMENSION WTPCT(3,10),ICPRG(3),ISGPRG(2),CSAVE(30,3,3), D 963
1 BSAVE(30,3),SGSAVE(30,3,2) D 964
C D 965
C THE FIRST PART OF THE PROGRAM WILL READ THE CONSERVATION D 966
C SHIFTS. THREE TYPES OF CONSERVATION SHIFTS EXIST: THOSE D 967
C WHICH ARE STRAIGHT NATIONAL PERCENTAGES TO BE APPLIED TO D 968
C ALL REGIONS UNIFORMLY; THOSE REPRESENTING WEATHERIZATION D 969
C WHICH ARE NATIONAL QUANTITIES TO BE SHARED OUT USING REGIONAL D 970
C PERCENTAGES AND THEN CONVERTED TO REGIONAL PERCENTAGE SHORTFALLS D 971
C THOSE WHICH ARE GIVEN IN ABSOLUTE NATIONAL QUANTITIES TO BE D 972
C CONVERTED TO CONSTANT PERCENTAGES ACROSS ALL REGIONS. D 973
C D 974

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Detailed Explanation and Documentation of the Software Package

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DO 5 NT=1,3                                D 975
READ (11,110) (ICPRG(I),I=1,3)            D 976
DO 5 K=1,30                                D 977
READ (11,115) (CSAVE(K,NT,I),I=1,3)        D 978
5 CONTINUE                                  D 979
READ (11,120) ((WTPCT(NT,J),NT=1,3),J=1,10) D 980
DO 10 K=1,30                                D 981
DO 10 NT=1,3                                D 982
DO 10 J=1,11                                D 983
QPSBTU(K,NT,J)=0.0                          D 984
CONSAV(K,NT,J)=0.0                          D 985
SOLGEO(K,NT,J)=0.0                          D 986
10 BOILSH(K,NT,J)=0.0                       D 987
C                                             D 988
C                                             D 989
C      NOW THE DIFFERENT KINDS OF CONSERVATION SHIFTS ARE TREATED D 990
C      IN TURN.  EACH OF THE THREE TYPES IS CONVERTED TO A REGIONAL D 991
C      PERCENTAGE AND THE PERCENTAGES ARE ADDED TOGETHER; THEN THEY D 992
C      ARE STORED IN A HOLDING ARRAY CALLED CONSAV.                D 993
C                                             D 994
DO 20 K=1,30                                D 995
DO 20 NT=1,3                                D 996
DO 15 J=1,10                                D 997
IF (QTYREG(J,K,IYR(NT)).EQ.0.0) GO TO 15    D 998
CONSAV(K,NT,J)=CSAVE(K,NT,1)+CSAVE(K,NT,2)*WTPCT(NT,J)/QTYREG(J,K,D 998
1IYR(NT))+CSAVE(K,NT,3)/QTYNAT(K,IYR(NT))   D 999
15 CONTINUE                                  D1000
IF (QTYNAT(K,IYR(NT)).EQ.0.0) GO TO 20      D1001
CONSAV(K,NT,11)=CSAVE(K,NT,1)+(CSAVE(K,NT,2)+CSAVE(K,NT,3))/QTYNATD1002
1(K,IYR(NT))                                D1003
20 CONTINUE                                  D1004
C                                             D1005
C      NOW THE SOLAR AND GEOTHERMAL SHIFTS ARE READ IN, REGION BY REGION D1006
C      THESE COME IN AS ABSOLUTE NUMBERS, AND ARE CONVERTED TO      D1007
C      REGIONAL PERCENTAGES WHICH ARE STORED IN A HOLDING ARRAY      D1008
C      CALLED SOLGEO.                                                 D1009
C                                             D1010
DO 30 J=1,10                                D1011
READ (11,125) (ISGPRG(I),I=1,2)            D1012
DO 25 K=1,30                                D1013
25 READ (11,130) ((SGSAVE(K,NT,I),I=1,2),NT=1,3) D1014
DO 30 NT=1,3                                D1015
DO 30 K=1,30                                D1016
IF (QTYREG(J,K,IYR(NT)).EQ.0.0) GO TO 30    D1017
SOLGEO(K,NT,J)=(SGSAVE(K,NT,1)+SGSAVE(K,NT,2))/QTYREG(J,K,IYR(NT)) D1018
30 CONTINUE                                  D1019
DO 35 J=1,10                                D1020
DO 35 K=1,30                                D1021
DO 35 NT=1,3                                D1022
IF (QTYNAT(K,IYR(NT)).EQ.0.0) GO TO 35      D1023
SOLGEO(K,NT,11)=SOLGEO(K,NT,11)+SOLGEO(K,NT,J)*(QTYREG(J,K,IYR(NT) D1024
1)/QTYNAT(K,IYR(NT)))                      D1025
35 CONTINUE                                  D1026

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Detailed Explanation and Documentation of the Software Package

C		D1027
C	NEXT THE BOILER SHIFT NUMBERS ARE READ IN. THESE NUMBERS ARE	D1028
C	ALSO CONVERTED TO PERCENTAGES FOR LATER USE IN A SUBSEQUENT	D1029
C	JOB STEP. IF ANY OF THE REGIONAL DECREMENTS ARE GREATER THAN	D1030
C	BASE CONSUMPTION IN THE YEAR IN QUESTION, THE DECREMENT IS	D1031
C	SET EQUAL TO THE BASE CONSUMPTION AND THE COAL SUBSTITUTION	D1032
C	QUANTITY IS CORRESPONDINGLY REDUCED.	D1033
C		D1034
	DO 45 J=1,10	D1035
	READ (11,135) ITITLE,IBPRG	D1036
	DO 40 K=1,30	D1037
40	READ (11,140) (BSAVE(K,NT),NT=1,3)	D1038
	DO 45 NT=1,3	D1039
	DO 45 K=1,30	D1040
	IF (QTYREG(J,K,IYR(NT)).EQ.0.0) GO TO 45	D1041
	BOILSH(K,NT,J)=BSAVE(K,NT)/QTYREG(J,K,IYR(NT))	D1042
45	CONTINUE	D1043
50	DO 55 K=1,6	D1044
	DO 55 NT=1,3	D1045
	DO 55 J=1,10	D1046
	STORER(K,NT,J)=0.0	D1047
	PSTORE(K,NT,J)=0.0	D1048
55	ISWTCH(K,NT,J)=0	D1049
	DO 60 J=1,10	D1050
	DO 60 NT=2,3	D1051
	DO 60 K=10,13	D1052
	K8=K-8	D1053
	HOLDER=(CONSAV(K,NT,J)+SOLGEO(K,NT,J)-BOILSH(K,NT,J))*QTYREG(J,K,IYR(NT))	D1054
	IF (HOLDER.LE.QTYREG(J,K,IYR(NT))) GO TO 60	D1055
	STORER(K8,NT,J)=HOLDER-QTYREG(J,K,IYR(NT))	D1056
	ISWTCH(K8,NT,J)=1	D1057
	BOILSH(K,NT,J)=CONSAV(K,NT,J)+SOLGEO(K,NT,J)-1.0	D1058
	BOILSH(14,NT,J)=(BOILSH(14,NT,J)*QTYREG(J,14,IYR(NT)))-	D1059
1	STORER(K8,NT,J)/QTYREG(J,14,IYR(NT))	D1060
	STORER(6,NT,J)=STORER(6,NT,J)-STORER(K8,NT,J)	D1061
60	CONTINUE	D1062
	DO 65 K=1,6	D1063
	DO 65 NT=2,3	D1064
	DO 65 J=1,10	D1065
	IF (ISWTCH(K,NT,J).EQ.1) GO TO 70	D1066
65	CONTINUE	D1067
	GO TO 95	D1068
70	DO 90 NT=2,3	D1069
	DO 90 K=10,14	D1070
	K8=K-8	D1071
	HOLDER=0.0	D1072
	DO 75 J=1,10	D1073
	IF (ISWTCH(K8,NT,J).EQ.1) GO TO 75	D1074
	HOLDER=HOLDER+BOILSH(K,NT,J)*QTYREG(J,K,IYR(NT))	D1075
75	CONTINUE	D1076
	DO 80 J=1,10	D1077
		D1078

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IF (ISWTCH(K8,NT,J).EQ.1) GO TO 80                                D1079
PSTORE(K8,NT,J) = (BOILSH(K,NT,J) * QTYREG(J,K,IYR(NT))) / HOLDER D1080
80 CONTINUE                                                        D1081
  HOLDER=0.0                                                        D1082
  DO 85 J=1,10                                                       D1083
85  HOLDER=HOLDER-STORER(K8,NT,J)                                   D1084
    DO 90 J=1,10                                                       D1085
      IF (ISWTCH(K8,NT,J).EQ.1) GO TO 90                             D1086
      BOILSH(K,NT,J) = BOILSH(K,NT,J) + (PSTORE(K8,NT,J) * HOLDER) / QTYREG(J,K, D1087
11YR(NT))                                                            D1088
90  CONTINUE                                                        D1089
    GO TO 50                                                           D1090
95  DO 100 J=1,10                                                       D1091
      DO 100 K=1,30                                                    D1092
      DO 100 NT=1,3                                                    D1093
      IF (QTYNAT(K,IYR(NT)).EQ.0.0) GO TO 100                        D1094
      BOILSH(K,NT,11) = BOILSH(K,NT,11) + BOILSH(K,NT,J) * (QTYREG(J,K,IYR(NT) D1095
11) / QTYNAT(K,IYR(NT)))                                             D1096
100 CONTINUE                                                         D1097
C                                                                      D1098
C      NOW ALL THE PERCENTAGE SHIFTS ARE WRITTEN OUT TO A TEMPORARY D1099
C      DATA SET WHICH WILL BE USED IMMEDIATELY BY THE NEXT JOB STEP. D1100
C                                                                      D1101
      DO 105 J=1,11                                                    D1102
      WRITE (14,145) ITITLE                                           D1103
      DO 105 K=1,30                                                    D1104
      WRITE (14,150) ((CONSAV(K,NT,J), SOLGEO(K,NT,J), BOILSH(K,NT,J)), NT D1105
11,3)                                                                D1106
105 CONTINUE                                                         D1107
      RETURN                                                           D1108
C                                                                      D1109
110 FORMAT (/5X,3(4X,A4))                                             D1110
115 FORMAT (5X,F8.4,2F8.2)                                             D1111
120 FORMAT (/9(4X,3F10.4/),4X,3F10.4)                                D1112
125 FORMAT (/8X,2(6X,A4))                                             D1113
130 FORMAT (8X,6F10.4)                                                 D1114
135 FORMAT (34X,3A4/24X,A4)                                            D1115
140 FORMAT (8X,3F20.4)                                                 D1116
145 FORMAT (1X,3A4/)                                                  D1117
150 FORMAT (1X,9F12.4)                                                D1118
      END                                                            D1119

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C=====D1120
C                                         D1121
C FUNCTION:      THIS SUBROUTINE (CONSER) PERFORMS EXOGENOUS    D1122
C                SHIFTS OF THE DEMAND CURVE.                    D1123
C                                         D1124
C STATUS        SUBROUTINE                                     D1125
C                                         D1126
C LANGUAGE:      FORTRAN IV                                    D1127
C                                         D1128
C REQ. ROUTINES: NONE                                         D1129
C                                         D1130
C SYNERGY LABEL: P50                                           D1131
C                                         D1132
C LAST UPDATE:   OCTOBER 8,1977                                D1133
C                                         D1134
C=====D1135
SUBROUTINE CONSER(IREG)                                         D1136
COMMON/PQRPT/PTYBTU(43,18),QTYPU(43,18),QTYPUD(43,18),        D1137
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18)             D1138
COMMON/PQENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18), D1139
1 PRCREG(10,18,18),QTYPTB(10,43,18)                           D1140
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3),    D1141
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2),      D1142
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4)        D1143
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D1144
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNL(2) D1145
2 ,IVERSN(2),IRNME(2)                                          D1146
COMMON/PIES/QTYP(30,3),PRCPS(18,3)                             D1147
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D1148
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4)                             D1149
COMMON/PQBASE/PTY(43,18),PRC(18,18),E(18,43,10)              D1150
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11),                D1151
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D1152
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10)               D1153
DIMENSION BTUEFF(3,2),IDSP(3,2),INGS(2)                       D1154
DATA INGS/2,6/,IDSP/1,3,4,5,7,8/,BTUEFF/1.96,.86,.98,1.92,   D1155
1 .92,.81/                                                     D1156
DO 5 NT=1,3                                                     D1157
DO 5 K=1,30                                                      D1158
5 HOOKUP(IREG,NT,K)=0.0                                          D1159
IF (ISHIFT(1).NE.1) GO TO 25                                     D1160
IF (IREG.EQ.1) GO TO 25                                         D1161
DO 15 NT=2,3                                                    D1162
DO 10 K=2,3                                                      D1163
DO 10 L=1,2                                                      D1164
HOOKUP(IREG,NT,IDSP(K,L))=(-1.)*{QTY(IDSP(K,L),IYR(NT))-      D1165
1 QTY(IDSP(K,L),9)}                                             D1166
IF (HOOKUP(IREG,NT,IDSP(K,L)).GT.0.) HOOKUP(IREG,NT,IDSP(K,L))=0. D1167
10 CONTINUE                                                    D1168
HOOKUP(IREG,NT,1)={-.5}*{QTY(1,IYR(NT))-QTY(1,9)}            D1169
IF (HOOKUP(IREG,NT,1).GT.0.0) HOOKUP(IREG,NT,1)=0.0           D1170

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15 CONTINUE                                         D1171
   DO 20 NT=2,3                                    D1172
   DO 20 L=1,2                                      D1173
   DO 20 K=1,3                                      D1174
20 HOOKUP(IREG,NT,INGS(L))=HOOKUP(IREG,NT,INGS(L))-(HOOKUP(IREG,NT,IDD1175
   1SP(K,L))*BTUEFF(K,L))                          D1176
25 READ (14,45) ITITLE                             D1177
   DO 30 K=1,30                                     D1178
   READ (14,50) ((CONSAV(K,NT,IREG),SOLGEO(K,NT,IREG),BOILSH(K,NT,IREDD1179
   1G)),NT=1,3)                                     D1180
   DO 30 NT=1,3                                     D1181
   IF (ISHIFT(2).EQ.0) CONSAV(K,NT,IREG)=0.0       D1182
   IF (ISHIFT(3).EQ.0) SOLGEO(K,NT,IREG)=0.0       D1183
   IF (ISHIFT(4).EQ.0) BOILSH(K,NT,IREG)=0.0       D1184
30 CONTINUE                                         D1185
   DO 35 NT=1,3                                     D1186
   DO 35 K=1,30                                     D1187
   CONSAV(K,NT,IREG)=QTY(K,IYR(NT))*CONSAV(K,NT,IREG) D1188
   SOLGEO(K,NT,IREG)=QTY(K,IYR(NT))*SOLGEO(K,NT,IREG) D1189
   BOILSH(K,NT,IREG)=QTY(K,IYR(NT))*BOILSH(K,NT,IREG) D1190
35 CONTINUE                                         D1191
   DO 40 NT=1,3                                     D1192
   DO 40 K=1,30                                     D1193
   QTYP(S(K,NT)=(QTY(K,IYR(NT))+HOOKUP(IREG,NT,K))- D1194
   1 CONSAV(K,NT,IREG)-SOLGEO(K,NT,IREG)+BOILSH(K,NT,IREG))/CFAC(K)/.3D1195
265                                                 D1196
   IF (QTYP(S(K,NT).GE.0.0) GO TO 40                D1197
   IF (K.LE.8) HOOKUP(IREG,NT,K)=HOOKUP(IREG,NT,K)-QTYP(S(K,NT) D1198
   IF (K.GT.8) BOILSH(K,NT,IREG)=BOILSH(K,NT,IREG)-QTYP(S(K,NT) D1199
   QTYP(S(K,NT)=0.0                                  D1200
40 QPSBTU(K,NT,IREG)=QTYP(S(K,NT)*CFAC(K)*.365     D1201
   RETURN                                             D1202
C                                                    D1203
45 FORMAT (1X,3A4/)                                  D1204
50 FORMAT (1X,9F12.4)                                D1205
   END                                              D1206

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C===== D1207
C D1208
C FUNCTION: THIS SUBROUTINE (WRITER) IS AN OUTPUT FORMATTING D1209
C ROUTINE TO OPERATE ON NATIONAL ARRAYS. D1210
C D1211
C STATUS SUBROUTINE D1212
C D1213
C LANGUAGE: FORTRAN IV D1214
C D1215
C REQ. ROUTINES: NONE D1216
C D1217
C SYNERGY LABEL: P50 D1218
C D1219
C LAST UPDATE: OCTOBER 8, 1977 D1220
C D1221
C===== D1222
SUBROUTINE WRITER D1223
COMMON/PORPT/PTYBTU(43,18),QTYPU(43,18),QTYPD(43,18), D1224
1 QGROW(43,18),PGROW(18,18),CFAC(30),PRCPU(18,18) D1225
COMMON/POENAT/QTYNAT(43,18),QNTPTB(10,43,18),QTYREG(10,30,18), D1226
1 PRCREG(10,18,18),QTYPTB(10,43,18) D1227
COMMON/DFNAME/NYR(18),NYRR(18),NMREG,NMFUEL(43),NMSEC(5,3), D1228
1 IYR(3),KREG,IYBNCH,IY1PRJ,IEMETH,IPMETH,IFSIC,IPARM(2), D1229
2 IFELAS(10),IBMETH(30),IDMETH(30),IFNHKP(14),ISHIFT(4) D1230
COMMON/BLOCK/IARRAY(5,10),IELAS(5),KELAS(13,5),ICNS(2),ICODE(2) D1231
1 ,KRORDR(10),KLAS(10),IDRUN(26),NDATE(2),TIME(4),ICON,IDCNTL(2) D1232
2 ,IVERSN(2),IRNMME(2) D1233
COMMON/PIES/PTYPS(30,3),PRCPS(18,3) D1234
COMMON/BOIL/NMBOIL(16),QBOIL(16,3),PBOIL(16,3),EBOIL(3,16,10), D1235
1 IBOIL(4),KBOIL(4,4),SHBOIL(5,4) D1236
COMMON/POBASE/PTY(43,18),PRC(18,18),E(18,43,10) D1237
COMMON/SHIFTS/QPSBTU(30,3,11),SOLGEO(30,3,11), D1238
1 CONSAV(30,3,11),BOILSH(30,3,11),ITITLE(3),HOOKUP(11,3,30), D1239
2 STORER(6,3,10),PSTORE(6,3,10),ISWTCH(6,3,10) D1240
WRITE (15,35) NMREG,(IDRUN(LL),LL=1,11),IDCNTL,NDATE,TIME(1),TIME( D1241
12),IYBNCH,IPMETH,IEMETH,IFELAS,IFSIC,IPARM,IBMETH,IDMETH,IFNHKP D1242
DO 5 NT=1,3 D1243
WRITE (15,40) NYRR(IYR(NT)) D1244
WRITE (15,45) ((J),J=1,10),NMREG D1245
DO 5 K=1,30 D1246
WRITE (15,50) NMFUEL(K), (QPSBTU(K,NT,J),J=1,11) D1247
5 CONTINUE D1248
DO 10 NT=1,3 D1249
WRITE (15,55) NYRR(IYR(NT)) D1250
WRITE (15,45) ((J),J=1,10),NMREG D1251
DO 10 K=1,30 D1252
WRITE (15,50) NMFUEL(K), (CONSAV(K,NT,J),J=1,11) D1253
10 CONTINUE D1254
DO 15 NT=1,3 D1255
WRITE (15,60) NYRR(IYR(NT)) D1256
WRITE (15,45) ((J),J=1,10),NMREG D1257
DO 15 K=1,30 D1258
WRITE (15,50) NMFUEL(K), (SOLGEO(K,NT,J),J=1,11) D1259

```

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```

15 CONTINUE                                     D1260
   DO 20 NT=1,3                                D1261
   WRITE (15,65) NYRR(IYR(NT))                 D1262
   WRITE (15,45) ((J),J=1,10),NMREG            D1263
   DO 20 K=1,30                                D1264
   WRITE (15,50) NMFUEL(K), (BOILSH(K,NT,J),J=1,11) D1265
20 CONTINUE                                     D1266
   DO 25 NT=1,3                                D1267
   WRITE (15,70) NYRR(IYR(NT))                 D1268
   WRITE (15,45) ((J),J=1,10),NMREG            D1269
   DO 25 K=1,30                                D1270
   WRITE (15,50) NMFUEL(K), (HOOKUP(J,NT,K),J=1,11) D1271
25 CONTINUE                                     D1272
   DO 30 NT=1,3                                D1273
   WRITE (15,75) NYRR(IYR(NT))                 D1274
   WRITE (15,45) ((J),J=1,10),NMREG            D1275
   DO 30 K=1,18                                D1276
   WRITE (15,80) NMFUEL(K), (PRCREG(J,K,IYR(NT)),J=1,10),PRC(K,IYR(NT) D1277
1)                                               D1278
30 CONTINUE                                     D1279
   RETURN                                       D1280
                                           D1281
35 FORMAT (1H1, 43HREGIONAL DEMAND INTERFACE MODEL FOR REGION ,A4//1XD1282
1, 10HTHIS IS A ,11A4, 1H ,2A4, 13H RUN, DATE = ,2A4, 9H, TIME = D1283
2,A2, 1H:,A2//1X, 13HBENCH YEAR = ,I2/1X, 20HPRICE PATH METHOD = ,D1284
3I2/1X, 20HELASTICITY METHOD = ,I2/1X, 20HPRICE PERTURBATIONS , 47HD1285
4DONE - (ZERO MEANS PERTURBATION WAS SKIPPED) - ,10I2/1X, 48HWAS IND1286
5DUSTY-SPECIFIC INDUSTRIAL MODEL USED ? - ,A2/1X, 60HTRANS MODEL PD1287
6PARAMETERS - (AUTO MPG STD & AIR LOAD FACTOR) - ,2I2/1X, 25HFUEL IND1288
7TERCEPT METHODS - ,30I2/1X, 14HFUEL INDEXING , 10HMETHODS - ,30I2/D1289
81X, 25HGAS REG NORMALIZATIONS - ,14I2) D1290
40 FORMAT (1H1,10X, 39HFINAL VERSION OF DEMAND POINT REPORT - , 51HIND1291
1CLUDING ALL SHIFTS - IN TRILLIONS OF BTU'S - FOR ,I4//) D1292
45 FORMAT (8X,10(6X, 3HFEA,I2),7X,A4/) D1293
50 FORMAT (1X,A4,3X,11F11.2) D1294
55 FORMAT (1H1,10X, 36HCONSERVATION SAVINGS - TRILLIONS OF , 12HBTU'SD1295
1 - FOR ,I4//) D1296
60 FORMAT (1H1,10X, 41HSOLAR AND GEOTHERMAL SAVINGS - TRILLIONS , 15HD1297
1OF BTU'S - FOR ,I4//) D1298
65 FORMAT (1H1,10X, 37HINDUSTRIAL BOILER SHIFTS - TRILLIONS , 15HOF BD1299
1TU'S - FOR ,I4//) D1300
70 FORMAT (1H1,10X, 39HRESIDENTIAL AND COMMERCIAL NATURAL GAS , 42HHOD1301
1OKUPS SHIFTS - TRILLIONS OF BTU'S - FOR ,I4//) D1302
75 FORMAT (1H1,10X, 41HINITIAL PRICES IN TRILLIONS OF BTU'S FOR ,I4//D1303
1) D1304
80 FORMAT (1X,A4, 1HP,2X,11F11.2) D1305
   END                                         D1306

```


VI. SIMULATION OF THE RDFOR MODEL

The purpose of this chapter is to provide the instructions for simulating the RDFOR Model. Section one provides a general overview of the simulation process and discusses the various programs and input files required. Section two documents the execution procedures required for simulating the RDFOR Model. Two simulation runs are used to provide expository examples of the simulation process. Section three discusses the output from the executions performed in Section two. All tables referred to in the text are compiled at the end of this chapter.

1. Overview of the Simulation Process

Simulation of the RDFOR 1977 model requires a systematic step by step process. The two programs used in simulating RDFOR are RD4 and DFACE, each of which must be executed in turn. In addition, two 'macro' files modify and establish the final run stream of both programs. These are RUNRD4 for RD4 and RUNDFCE for DFACE.

Both RDFOR and DFACE require a set of input files. As these are combined in different ways, they control the type of simulation implemented. These input files are presented in Table VI.1. The left portion of the table lists the input files to RD4 and the right portion of the table lists the input files to DFACE. The dates in parentheses next to the simulation version indicate the most current update of the simulation run.

The output files generated through the execution of RD4 are utilized as input into the DFACE program. This means that RD4 must be successfully executed before DFACE can be executed. At each scenario implementation both RD4 and DFACE are always calibrated prior to implementation of the desired scenario. This calibration procedure is necessary to debug the raw version of the demand model.

2. Execution of RD4 and DFACE

As mentioned above, simulation of the RDFOR Model requires a systematic execution of RD4 and DFACE. This section utilizes two DOE simulation runs to document the execution steps for both the RD4 and DFACE programs. A summary of these runs is presented in Table VI.2. These runs will be discussed in the order shown there.

Subsections A through E provide the steps necessary for simulating RDFOR on the two scenarios. These are referred to as versions 1 and 6. Version 1 represents the base case and version 6 represents the demand shifts case on pending legislation in the House Ways and Means Committee (See Section 3, Chapter III). The line numbers on the left are inserted here for describing the execution steps later in subsection F.

A. Execution of RD4 Calibration Case and Demand Shifts Case (Version 1)

```

1  ? USE FROM RD4 on FEA021 CLR
2  ? CALL FROM RUNRD4 ON FEA001
3  WHAT IS YOUR INITIAL? RC4
4  WHAT IS YOUR ACCOUNT NO ? 6417
5  WHAT IS YOUR NAME? RCLARKE
6  MACRO INPUT FILE - TYPE ONLY 'PRES PGM' FOR EXAMPLE: PRES PGM
7  PRICE INPUT FILE :FX500810
8  PARAMETER INPUT FILE :MAY25STRN
9  INITIAL QUANTITY INPUT FILE :MY3TRANS
10 CHOOSE A MEMBER FROM THE CONTROL FILE :REF75AQQ
11 CHOOSE A VERSION FOR THE OUTPUT FILES :VERSIONS
12 CHOOSE A MEMBER FROM THE MPG STANDARD FILE :PBSE0810
13 IF THIS IS THE VERY FIRST TIME YOU RUN THIS PROGRAM
    OR IF THIS IS THE FIRST TIME YOU ARE CHOOSING A VERSION
    DELETE LINES 2 THRU 17 BY TYPING 'DEL 2/17"
14 ? DEL 2/17
15 ? NUM
16 1/2330
17 ? RUN HOLD UNN BIN D01 REM 2
    
```

B. Execution of DFACE Calibration Case and Demand Shifts Case
(Version 1)

```

1  ? USE FROM DFJCL ON FEA021 CLR
2  ? CALL FROM RUNDACE ON FEA001
3  WHAT IS YOUR INITIAL? RC4
4  WHAT IS YOUR ACCOUNT? 6417
5  WHAT IS YOUR NAME? RCLARKE
6  WHAT CONSERVATION FILE DO YOU WANT ?PRBASE
7  NAME OF DEMPT 7 EPIES REPORTS ?VERSIONS
8  CONTROL FILE FOR 1ST DFACE:CONDFACE
9  CONTROL FILE FOR 2ND DFACE:BSDFACE
10 VERSION TO USE FOR CALIBRATION:VERSIONS
11 VERSION TO USE FOR RUN ITSELF:VERSIONS
12 WHAT IS DFACE DATE CODE ?(8 CHARS) 11/7/77
13 IF THIS IS THE VERY FIRST TIME YOU RUN THIS PROGRAM
    OR IF THIS IS THE FIRST TIME YOU ARE CHOOSING A VERSION
    DELETE LINES 2 THRU 29 BY TYPING 'DEL 2/29"
14 ? DEL 2/29
15 ? NUM
16 ? 1/740
17 ? RUN HOLD UNN BIN D01 REM 2
    
```

C. Execution of RD4 Calibration Case (Version 6)

```

1  ? USE FROM RD4 ON FEA021 CLR
2  ? CALL FROM RUNRD4 ON FEA001
3  WHAT IS YOUR INITIAL? RC4
4  WHAT IS YOUR ACCOUNT NO.? 6417
5  WHAT IS YOUR NAME? RCLARKE
6  MACRO INPUT FILE - TYPE ONLY 'PRESFGM' FOR EXAMPLE :PRESFGM
7  PRICE INPUT FILE :FX500810
8  PARAMETER INPUT FILE :MAY25TRN
9  INITIAL QUANTITY INPUT FILE :MYSTRANS
10 CHOOSE A MEMBER FROM THE CONTROL FILE :REF75AQQ
11 CHOOSE A VERSION FOR THE OUTPUT FILES :VERSIONT
12 CHOOSE A MEMBER FROM THE MPG STANDARD FILE :A20CALIB
13 IF THIS IS THE VERY FIRST TIME YOU RUN THIS PROGRAM
    OR IF THIS IS THE FIRST TIME YOU ARE CHOOSING A VERSION
    DELETE LINES 2 THRU 17 BY TYPING 'DEL 2/17"
14 ? DEL 2/1
15 ? NUM
16 1/2330
17 ? RUN HOLD UNN BIN D01 REM 2
    
```

D. Execution of RD4 Demand Shifts Case (Version 6)

```
1  ? USE FROM RD4 ON FEA021 CLR
2  ? CALL FROM RUNRD4 on FEA001
3  WHAT IS YOUR INITIAL? RC4
4  WHAT IS YOUR ACCOUNT NO.? 6417
5  WHAT IS YOUR NAME? RCLARKE
6  MACRO INPUT FILE - TYPE ONLY 'PRESFGM' FOR EXAMPL :PRESFGM
7  PRICE INPUT FILE :FX500510
8  PARAMETER INPUT FILE :MAY25TRN
9  INITIAL QUANTITY INPUT FILE :MY3TRANS
10 CHOOSE A MEMBER FROM THE CONTROL FILE :REF75AQQ
11 CHOOSE A VERSION FOR THE OUTPUT FILES :VERSIONU
12 CHOOSE A MEMBER FROM THE MPG STANDARD FILE :HWMC0811
13 IF THIS IS THE VERY FIRST TIME YOU RUN THIS PROGRAM
    OR IF THIS IS THE FIRST TIME YOU ARE CHOOSING A VERSION
    DELETE LINES 2 THRU 17 BY TYPING 'DEL 2/17"
14 ? Del 2/17
15 ? NUM
16 1/2330
17 ? RUN HOLD UNN BIN D01 REM 2
```

E. Execution of DFACE Calibration and Demand Shifts Case (Version 6)

```

1  ? USE FROM DFJCL ON FEA021 CLR
2  ? CALL FROM RUNDFCE ON FEA001
3  WHAT IS YOUR INITIAL? RC4
4  WHAT IS YOUR ACCOUNT? 6417
5  WHAT IS YOUR NAME? RCLARKE
6  WHAT CONSERVATION FILE DO YOU WANT ?HA21CCML
7  NAME OF DEMPT 7 EPIES REPORTS ?VERSIONU
8  CONTROL FILE FOR 1ST DFACE:CONDFACE
9  CONTROL FILE FOR 2ND DFACE:INTDFACE
10 VERSION TO USE FOR CALIBRATION:VERSIONT
11 VERSION TO USE FOR RUN ITSELF:VERSIONU
12 WHAT IS DFACE DATE CODE ? (8 CHARS) 11/7/77
13 IF THIS IS THE VERY FIRST TIME YOU RUN THIS PROGRAM
    OR IF THIS IS THE FIRST TIME YOU ARE CHOOSING A VERSION
    DELETE LINES 2 THRU 29 BY TYPING 'DEL 2/29"
14 ? Del 2/29
15 ? NUM
16 1/740
17 ? RUN HOLD UNN BIN DO1 REM 2

```

F. Description of RD4 Execution Steps

This subsection describes the execution steps of RD4 as presented in subsections A, C and D above. Letters in parentheses indicate either the user's action or computer response:

(u) = user types entire line.
(c) = computer response.
(c/u) = computer responds (or questions) and the user types in required information.

Note that all question marks (?) are computer responses.

Line 1 (u)	This command brings RD4 into a temporary workspace in Wylbur.
Line 2 (u)	This command initiates the execution of RD4 with a set of 'macro' commands stored in the data set RUNRD4.
Line 3 (c/u)	This command requests the user's initial. The user responds by entering his initials.
Line 4 (c/u)	This command requests the user's account no. The user responds by entering his account no.

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Line 5 (c/u) This command requests the user's name.
The user responds by entering his name.
Lines 3-5 modify the job card in RD4 to be compatible
with the user's account initials, and name.

Line 6 (c/u) This command requests the macro input file
to be used in the run. The user responds by
typing in the file name. Note that
the program is set up to
recognize partial data set names as listed in
Table VI.1.

Line 7 (c/u) This command requests the price input file
to be used in the run. The user types in the
file name.

Line 8 (c/u) This command requests the
parameter file to be used in the run. The
user types in the file name.

Line 9 (c/u) This command requests the quantity
file to be used in the run. The user
types in the file name.

Line 10 (c/u) This command requests the control
file name. The user types in the file name.

Line 11 (c/u) This command requests a 'version'
for the run being made. The user types
in the version of the run.

Line 12 (c/u) This command requests the MPG
standard file name. The user types in the
file name. Note that in Version 1 the MPG
standard file is the same for both the calibration
case and demand shifts case (base case).
In version 6, the MPG standard file is
A20CALID for the calibration case
and HWMCO811 for the demand shifts case.

Line 13-14 (c/u) These commands are recognized only
if the simulation runs are being made
for the first time. If the purpose
of the run is to update previously allocated
data sets, these lines are left in so that
the old versions are deleted and subsequently
replaced with the updated data sets.

Line 15 (u) This command re-numbers the
program RD4.

Line 16 (c) Computer response to line 17.

Line 17 (u) This command submits the job
to the job stream.

G. Description of DFACE Execution Steps

This subsection describes the execution steps of DFACE as presented in subsections B and E, above. The format of presentation and the abbreviations utilized are the same as in subsection F.

Line 1 (u) This command brings DFACE into
a temporary workspace in WYLBUR.

Line 2 (u) This command initiates the execution of DFACE
with a set of 'macro' commands stored in the
data set RUNDFCE.

Lines 3-5 (c/u) These commands modify the existing
job card in DFACE to be compatible with the
user's initials, account and name.

Line 6 (c/u) This is a 'macro' command
requesting the name of the conservation file
to be used in the simulation. The user
responds by typing in the file name as listed
in Table VI.1.

Line 7 (c/u) This command requests a name for
the demand print report and the PIES
elasticity report. The user types in the
name he wants to call these reports.

Line 8 (c/u) This command requests the file
name for the calibration case (1st DFACE).
The user types in the file name.

Line 9 (c/u) These commands request the
file name for the demand shifts
case (2nd DFACE). The user types
in the file name.

Lines 10-11 (c/u) These commands request the
versions for the calibration case and
the demand shifts case. At present,
the same version used in calibrating RD4

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is used in calibrating DFACE and similarly, the demand shifts case.

- Line 12 (c/u) This command requests a date for the DFACE run. This date code must be restricted to eight characters.
- Lines 13-14 (c/u) As in the case of RD4, this command is necessary only if the simulation run is being made for the first time. For update purposes ignore this command.
- Line 15 (u) This command renumbers the program, DFACE.
- Line 16 (c) Computer response to line 14.
- Line 17 (u) This command submits the job into the job stream.

3. Simulation Output

This section describes the output from simulating the RDFOR model. To avoid duplication of the DOE runs, Versions 1 and 6 executed for inclusion here as examples are relabelled as Version S and Version U, respectively.

The outputs from executing RD4 and DFACE consist of 'pressed' and 'unpressed' files that can be decompressed and printed or used as Wylbur data sets. (See Chapter V for more details). These outputs are discussed below.

A. RD4 Simulation Output

The output from executing RD4 consists of the following:

1. Characteristics of the run for each region. These include the input files used; the year used for benchmarking; methods used for price path construction, elasticity computation, intercept adjustments and fuel

indexing; and the fuel/sector pairs simulated in the run. An example of this output is shown in Table VI.3. for version S.

2. Pressed output information for prices, quantities, and elasticities and DEBUG reports. These can be decompressed and printed, if desired. Table B.1 provides examples of the pressed output produced by RD4 for version S.

B. -- DFACE Simulation Output

The output from executing DFACE consists of the following:

1. RD4 unpressed information on elasticities (FELAST), prices and quantities (FPRQTY) for each DOE region. The unpress utility prepares these data for the DFACE FORTRAN program.
2. Pressed information on the log of runs. A log is kept on the runs made on DFACE. Each time DFACE is executed this log is updated. An example of this output is shown in Table B.2 for version S.
3. The EPIES report. Own price and cross-price elasticities are produced for the 30 fuel/sector pairs for each DOE region for 1980, 1985 and 1990. At the end of this report, the updated log information is printed. Table VI.4 presents an example of this output for version S.
4. The DEMPT report. This report includes both quantities and prices forecasted for the years 1980, 1985, and 1990 for the 30 fuel/sector pairs for each region. Tables VI.5 and VI.6 present examples of this output report, for version S.
5. Regional quantity data (including the U.S.) for residential, commercial, industrial, and transportation sectors in trillions of Btu's and other fuel specific units (millions of barrels, millions of kilowatt hours, etc.) Annual growth rates for each fuel sector pair quantities are also produced. Tables VI.7A through VI.7D provide examples of these outputs for version S.
6. Regional elasticities for all sectors for each of the forecast years, 1976-1990. Tables VI.8A and VI.8B

present examples for region 1 residential and commercial sectors for version S.

7. Tabular results of the demand shifts imposition by fuel/sector and DOE region including the U.S. for 1980, 1985 and 1990. This is the final version of the demand print report for all shifts, conservation savings, solar geothermal savings, industrial boiler shifts, and natural gas hookup shifts in the residential and commercial sectors. A table of the initial unperturbed prices generated by PIES that DFACE utilized in the simulation is also printed. Tables B.3 and B.4 provide examples of these outputs for versions S and U.
8. Finally, an updated version of the log is printed as shown in Table B.5 for versions S and U, respectively.

TABLE VI.1: INPUT FILES FOR EXECUTING RD4 AND DFACE

RD4	DFACE
-----	-------

VERSION 1 (AS OF 10/17/77)

Standard Input Files

FX500810 -Price File
 PRESPGM -Macro File
 MAY25TRN -Parameter File
 MY3TRANS -Quantity File

Control Files

CONDFACE
 -Calibration
 BSEDFACE
 -Demand shifts

Conversation File

PRBASE
 -Both Calibration
 and Demand Shifts

Control File

REF75AQQ

MPG Standard File

PBSE0810 -Both Calibration
 and Demand Shifts

VERSION 2 (as of 09/08/77)

Standard Input Files

Same as Version 1

Control Files

CONDFACE
 -Calibration
 INTDFACE
 -Demand Shifts

Control File

Same as Version 1

Conservation File

STST0909
 -Both Calibration
 and Demand Shifts

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MPG Standard File

A20CALIB -Calibration
 SENP0811 -Demand Shifts

VERSION 3 (as of 10/18/77)

Standard Input Files

FX500810

SP25DN01

MAY25TRN

MY3TRANS-

Control File

Same as Version 1

MPG Standard File

Same as Version 1 for both
 Calibration and Demand
 Shifts

Control Files

CONDFACE

-Calibration

CNBDFACE

-Demand Shifts

Conservation File

B1003EME

Both Calibration
 and Demand Shifts

VERSION 4 (as of 10/06/77)

Standard Input Files

FX500810

SP25UP01

MAY25TRN

MY3TRANS

Control File

Same as Version 1

MPG Standard File

Same as Version 1 for both
 Calibration and
 Demand Shifts

Control File

CONDFACE

-Calibration

CNBDFACE

-Demand Shifts

Conservation File

B1003EMF

-Both Calibration
 and Demand Shifts

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VERSION 5 (AS OF 09/09/77)

Standard Input Files

FX500810 -Price File
 PRESFGM -Macro File
 MAY25TRN -Parameter File
 MY3TRANS -Quantity File

Control Files

CONDFACE
 -Calibration
 INTDFACE
 -Demand Shifts

Conservation File

INIT

Control File

Same as Version 1

-Both Calibration
 and Demand Shifts

MPG-Standard-File

A20CALIB -Calibration
 A20PRPGM -Demand Shifts

VERSION 6 (AS OF 10/27/77)

Standard Input files

Same as Version 5

Control Files

CONDFACE
 -Calibration
 INTDFACE
 -Demand Shifts

Control File

Same as Version 1

Conservation File

HA21CCML
 -Both Calibration
 and Demand Shifts

MPG-Standard-Files

A20CALIB -Calibration
 HWMC0811 -Demand Shifts

VERSION 7

No Runs Made to Date

VERSION 8 (as of 11/02/77)

Standard Input Files

Control Files

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Same as Version 1	CONDFACE
	-Calibration
	BSEDFACE
	-Demand Shifts
<u>Control File</u>	<u>Conservation File</u>
Same as Version 1	PRBASE
	-Both Calibration
	and Demand Shifts
<u>MPG Standard File</u>	
A20CALIB	-Both Calibration
	and Demand Shifts

TABLE VI.2: SUMMARY OF RD4 AND DFACE RUNS

-
- A. RD4 calibration case and demand shifts case - version 1.
 - B. DFACE calibration case and demand shifts case - version 1
 - C. RD4 calibration case - version 6
 - D. RD4 demand shifts case - version 6
 - E. DFACE calibration case and demand shifts case - version 6
-

TABLE VI.3: VERSION S RUN CHARACTERISTICS

REGIONAL DEMAND FORECASTING MODEL FOR REGION FEA1

THIS IS A FX500810 PRESPGM MAY25TRN MY3TRANS VERSIONS PBSE0810 RUN
 DATE = 11/17/77, TIME = 17:48

BENCH YEAR = 3
 PRICE PATH METHOD = 1
 ELASTICITY METHOD = 1
 PRICE PERTURBATIONS DONE : (ZERO MEANS PERTURBATION WAS SKIPPED) : 1 1 1
 WAS INDUSTRY-SPECIFIC INDUSTRIAL MODEL USED ? : F
 TRANS MODEL PARAMETERS : (AUTO MPG STD & AIR LOAD FACTOR) : 1 0
 FUEL INTERCEPT METHODS : 3
 FUEL INDEXING METHODS : 1
 GAS REG NORMALIZATIONS : 0 0 0 0 0 0 0 0 0 0 0 0 0 0
 RESIDENTIAL SECTOR
 COMMERCIAL SECTOR
 TRANSPORTATION SECTOR
 AGGREGATE INDUSTRIAL SECTOR
 PERTURB GSTRP
 TRANSPORTATION SECTOR
 COMPUTE ELASTICITIES FOR GSTRP
 PERTURB ELTTP
 RESIDENTIAL SECTOR
 COMMERCIAL SECTOR
 AGGREGATE INDUSTRIAL SECTOR
 COMPUTE ELASTICITIES FOR ELTTP
 PERTURB NGTTP
 RESIDENTIAL SECTOR
 COMMERCIAL SECTOR
 AGGREGATE INDUSTRIAL SECTOR
 COMPUTE ELASTICITIES FOR NGTTP
 PERTURB DFTTP
 RESIDENTIAL SECTOR
 COMMERCIAL SECTOR
 TRANSPORTATION SECTOR
 AGGREGATE INDUSTRIAL SECTOR
 COMPUTE ELASTICITIES FOR DFTTP
 PERTURB RFTTP
 COMMERCIAL SECTOR
 TRANSPORTATION SECTOR
 AGGREGATE INDUSTRIAL SECTOR
 COMPUTE ELASTICITIES FOR RFTTP
 PERTURB LGTTP
 RESIDENTIAL SECTOR
 AGGREGATE INDUSTRIAL SECTOR
 COMPUTE ELASTICITIES FOR LGTTP
 PERTURB JFTRP
 TRANSPORTATION SECTOR

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COMPUTE ELASTICITIES FOR JFTRP
PERTURB CLTTP
AGGREGATE INDUSTRIAL SECTOR
COMPUTE ELASTICITIES FOR CLTTP
PERTURB OLTTP
RESIDENTIAL SECTOR
COMMERCIAL SECTOR
TRANSPORTATION SECTOR
AGGREGATE INDUSTRIAL SECTOR
COMPUTE ELASTICITIES FOR OLTTP
PERTURB TTTTP
RESIDENTIAL SECTOR
COMMERCIAL SECTOR
TRANSPORTATION SECTOR
AGGREGATE INDUSTRIAL SECTOR
COMPUTE ELASTICITIES FOR TTTTP

TABLE VI.4: REGIONAL UNSCALED ELASTICITIES FOR FEA1, 1980

	ELTTP	NGTTP	DFTTP	RFTTP	LGTTT	CLTTP	GSTRP	JFTRP
ELRS	-0.563	0.036	0.246	0.0	0.015	0.0	0.0	0.0
NGRS	0.060	-0.480	0.145	0.0	0.009	0.0	0.0	0.0
DFRS	0.485	0.118	-0.889	0.0	0.022	0.0	0.0	0.0
LGRS	0.207	0.051	0.197	0.0	-0.720	0.0	0.0	0.0
ELCM	-0.434	0.015	0.054	0.023	0.0	0.0	0.0	0.0
NGCM	0.206	-0.628	0.055	0.026	0.0	0.0	0.0	0.0
DFCM	0.061	0.009	-0.421	0.008	0.0	0.0	0.0	0.0
RFCM	0.103	0.012	0.022	-0.480	0.0	0.0	0.0	0.0
ELIN	-0.174	0.031	0.020	0.025	0.028	0.003	0.0	0.0
NGIN	0.212	-0.327	0.010	0.021	0.016	0.001	0.0	0.0
DFIN	0.234	0.028	-0.375	0.025	0.020	0.002	0.0	0.0
RFIN	0.149	0.026	0.021	-0.295	0.028	0.004	0.0	0.0
LGIN	0.163	0.021	0.011	0.018	-0.283	0.002	0.0	0.0
CLIN	0.320	0.036	0.015	0.032	0.023	-0.492	0.0	0.0
GSTR	0.0	0.0	0.069	0.0	0.0	0.0	-0.236	0.0
DFTR	0.0	0.0	-0.780	0.0	0.0	0.0	0.388	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.164
RFTR	0.0	0.0	0.151	-0.102	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.057	0.0	0.0	0.0	-0.193	0.0
CLHC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTT	-0.393	0.028	0.109	0.016	0.014	0.001	0.0	0.0
NGTT	0.136	-0.470	0.086	0.012	0.009	0.0	0.0	0.0
DFTT	0.307	0.072	-0.722	0.003	0.013	0.0	0.033	0.0
RFTT	0.113	0.017	0.031	-0.383	0.010	0.001	0.0	0.0
LGTT	0.120	0.022	0.058	0.007	-0.306	0.001	0.0	0.0
OPTT	0.0	0.0	0.057	0.0	0.0	0.0	-0.193	0.0
OLTT	0.137	0.031	-0.237	-0.051	-0.006	0.0	-0.079	-0.007
CLTT	0.308	0.034	0.014	0.031	0.022	-0.473	0.0	0.0

TABLE VI.5: DEMAND POINT QUANTITIES FOR FEA1

	1980	1985	1990
ELRS	90.058365	110.811859	126.643555
NGRS	459.909668	496.946289	493.052734
DFRS	194.286591	222.090118	252.667557
LGRS	14.966373	17.737625	19.766464
ELCM	86.736084	105.577103	116.487091
NGCM	208.770660	211.324722	190.215973
DFCM	103.567535	115.930786	125.422882
RFCM	60.472458	55.637970	52.687454
ELIN	85.700714	106.984161	126.716324
NGIN	266.634766	317.189697	348.948730
DFIN	8.369683	10.095361	11.993175
RFIN	42.638092	42.356155	46.433243
LGIN	21.542114	27.077576	31.988739
CLIN	0.553181	0.613090	0.733272
GSTR	368.727295	385.064209	407.772949
DFTR	28.334213	29.931931	31.158646
JFTR	41.476334	54.766541	62.919250
RFTR	8.045957	8.369038	8.507174
ELTR	0.080297	0.080297	0.080297
NGRM	0.0	0.0	0.0
LGCM	1.409822	1.420067	1.405040
LGTR	0.045081	0.034836	0.030054
LGFS	16.936295	18.004578	19.044876
LGRM	0.0	0.0	0.0
OLRM	0.0	0.0	0.0
PCIN	0.0	0.0	0.0
ASCM	16.785156	17.392059	18.227676
CLHC	0.019509	0.008676	0.005303
CLTR	0.0	0.0	0.0
MCIN	0.0	0.0	0.0

TABLE VI.6: DEMAND POINT PRICES FOR FEA1

	1980	1985	1990
ELRSP	44.30	43.54	47.00
NGRSP	3.54	3.96	4.82
DFRSP	18.64	19.08	20.35
LGRSP	14.16	14.12	15.25
ELCMP	43.59	43.27	46.73
NGCMP	2.97	3.37	4.23
DFCMP	16.99	17.87	19.14
RFCMP	14.52	15.78	16.77
ELINP	34.26	36.75	40.21
NGINP	2.52	2.87	3.73
DFINP	16.98	17.86	19.13
RFINP	14.66	16.08	17.07
LGINP	12.73	13.31	14.44
CLINP	31.86	38.36	39.24
GSTRP	25.49	27.33	28.67
DFTRP	22.65	23.53	24.80
JFTRP	18.88	18.93	20.10
RFTRP	14.66	16.08	17.07

TABLE VI.7A: REGIONAL QUANTITY ARRAY FOR FEA1 - VERSION S
RESIDENTIAL SECTOR, TRILLIONS OF BTUS

	ELRS	NGRS	DFRS	LGRS	CLHC	TTRS
1973	90.20	137.30	430.00	14.50	1.50	673.60
1974	88.90	142.30	392.10	14.30	1.60	639.30
1975	90.20	146.20	378.80	16.10	0.90	632.20
1976	92.20	150.30	372.69	17.44	0.57	633.20
1977	96.42	156.63	378.59	18.73	0.39	650.75
1978	101.76	163.48	389.51	19.90	0.29	674.93
1979	107.42	169.73	402.21	20.96	0.22	700.54
1980	113.05	174.97	415.24	21.91	0.18	725.35
1981	119.01	179.90	429.67	22.88	0.15	751.61
1982	124.96	184.07	444.07	23.81	0.13	777.04
1983	130.18	186.57	455.89	24.59	0.11	797.34
1984	134.99	188.00	466.23	25.29	0.10	814.61
1985	140.01	189.31	477.11	26.01	0.09	832.52
1986	144.81	190.14	489.91	26.71	0.08	851.65
1987	149.26	190.34	503.75	27.36	0.07	870.79
1988	153.27	189.89	517.44	27.95	0.06	888.60
1989	156.96	189.02	531.20	28.51	0.06	905.75
1990	160.59	188.07	545.55	29.08	0.05	923.35

TABLE VI.7B: REGIONAL QUANTITY ARRAY FOR FEA1 - VERSION S
RESIDENTIAL SECTOR, MMBL, MMMCF, MMMKWH & MMTON
PER YEAR

	ELRS	NGRS	DFRS	LGRS	CLHC
1973	26.44	133.04	73.82	3.62	0.07
1974	26.06	137.89	67.31	3.57	0.07
1975	26.44	141.67	65.03	4.01	0.04
1976	27.02	145.64	63.98	4.35	0.03
1977	28.26	151.78	64.99	4.67	0.02
1978	29.82	158.41	66.87	4.96	0.01
1979	31.48	164.47	69.05	5.22	0.01
1980	33.13	169.55	71.29	5.46	0.01
1981	34.88	174.32	73.76	5.70	0.01
1982	36.62	178.36	76.24	5.94	0.01
1983	38.15	180.78	78.26	6.13	0.00
1984	39.56	182.17	80.04	6.30	0.00
1985	41.03	183.44	81.91	6.49	0.00
1986	42.44	184.24	84.11	6.66	0.00
1987	43.75	184.44	86.48	6.82	0.00
1988	44.92	184.00	88.83	6.97	0.00
1989	46.00	183.16	91.19	7.11	0.00
1990	47.07	182.24	93.66	7.25	0.00

TABLE VI.7C: REGIONAL QUANTITY ARRAY FOR FEA1 - VERSION S
RESIDENTIAL SECTOR, MBL, MMCF, MMKWH & MTON PER DAY

	ELRS	NGRS	DFRS	LGRS	CLHC
1973	72.43	364.50	202.25	9.90	0.18
1974	71.38	377.77	184.42	9.77	0.19
1975	72.43	388.13	178.16	11.00	0.11
1976	74.03	399.01	175.29	11.91	0.07
1977	77.42	415.82	178.07	12.79	0.05
1978	81.71	434.00	183.20	13.59	0.03
1979	86.25	450.60	189.18	14.31	0.03
1980	90.78	464.51	195.30	14.97	0.02
1981	95.56	477.59	202.09	15.63	0.02
1982	100.34	488.65	208.86	16.27	0.02
1983	104.53	495.29	214.42	16.80	0.01
1984	108.39	499.10	219.29	17.27	0.01
1985	112.42	502.58	224.40	17.77	0.01
1986	116.28	504.78	230.43	18.24	0.01
1987	119.85	505.32	236.94	18.69	0.01
1988	123.07	504.11	243.37	19.09	0.01
1989	126.04	501.81	249.85	19.47	0.01
1990	128.95	499.29	256.59	19.86	0.01

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Simulation of the RDFOR Model

TABLE VI.7D: REGIONAL QUANTITY GROWTH RATES FOR FEA1 - VERSION S
RESIDENTIAL SECTOR, ANNUAL BASIS

	ELRS	NGRS	DFRS	LGRS	CLHC	TTRS
75-76	2.22	2.80	-1.61	8.33	-37.00	0.16
75-77	3.39	3.51	-0.03	7.85	-34.26	1.46
75-78	4.10	3.79	0.93	7.32	-31.76	2.20
75-79	4.46	3.80	1.51	6.81	-29.61	2.60
75-80	4.62	3.66	1.85	6.36	-27.68	2.79
75-81	4.73	3.52	2.12	6.03	-25.98	2.93
75-82	4.77	3.35	2.30	5.75	-24.49	2.99
75-83	4.69	3.09	2.34	5.44	-23.19	2.94
75-84	4.58	2.83	2.33	5.15	-22.02	2.86
75-85	4.49	2.62	2.33	4.92	-20.93	2.79
75-86	4.40	2.42	2.37	4.71	-20.03	2.75
75-87	4.29	2.22	2.40	4.52	-19.27	2.70
75-88	4.16	2.03	2.43	4.33	-18.50	2.65
75-89	4.04	1.85	2.44	4.17	-17.89	2.60
75-90	3.92	1.69	2.46	4.02	-17.31	2.56

TABLE VI.8A: REGIONAL ELASTICITIES FOR FEA1 - VERSION S
RESIDENTIAL SECTOR, 1976

	ELRS	NGRS	DFRS	LGRS	CLHC	TTRS
ELTTP	-0.246	0.015	0.215	0.103	0.0	0.097
NGTTP	0.016	-0.215	0.081	0.038	0.0	0.0
DFTTP	0.044	0.015	-0.490	0.102	0.0	-0.276
LGTTTP	0.002	0.001	0.010	-0.427	0.0	-0.005
TTTTTP	-0.184	-0.184	-0.184	-0.184	0.0	-0.184

TABLE VI.8B: REGIONAL ELASTICITIES FOR FEA1 - VERSION S
COMMERCIAL SECTOR, 1976

	ELCM	NGCM	DFCM	RFCM	LGCM	ASCM	TTCM
GSTRP	0.0	0.0	0.0	0.0	0.0	-0.135	-0.009
ELTTP	-0.248	0.072	0.013	0.027	0.0	0.0	-0.015
NGTTP	0.013	-0.305	0.002	0.005	0.0	0.0	-0.033
DFTTP	0.042	0.040	-0.183	0.015	0.0	0.011	-0.048
RFTTP	0.031	0.030	0.005	-0.209	0.0	0.0	-0.053
TTTTTP	-0.162	-0.162	-0.162	-0.162	-0.084	-0.124	-0.159

TABLE R.11 RDM PRESS OUTPUT (VERSION S)

A. ELASTICITY REPORT

SUPERWYLBUR PRESS UTILITY DATE: 11/17/77 TIME: 17: 36: 14 PAGE 1

FROM WORK52, DSN=SYS77321,1172257,RA000,SN1URD4,ELASTR1 LRECL=133 BLKSIZE=1330 RECFM=FB
TO FFA006, DSN=CN6370,SN1,RD4OUT,VERSIONS,FELAST,DATA MEMBER=FFA01 LRECL=3520 BLKSIZE=3520 RECFM=U

607 LINES WERE PRESSED INTO 11 BLOCK(S) OF COMPRESSED TEXT, CONDITION CODE 00

B. PRICE AND QUANTITY REPORT

SUPERWYLBUR PRESS UTILITY DATE: 11/17/77 TIME: 17: 36: 14 PAGE 1

FROM WORK52, DSN=SYS77321,1172257,RA000,SN1URD4,PRQTYW1 LRECL=133 BLKSIZE=1330 RECFM=FB
TO FFA006, DSN=CN6370,SN1,RD4OUT,VERSIONS,FPRQTY,DATA MEMBER=FFA01 LRECL=3520 BLKSIZE=3520 RECFM=U

607 LINES WERE PRESSED INTO 11 BLOCK(S) OF COMPRESSED TEXT, CONDITION CODE 00

C. DEBUG REPORT

SUPERWYLBUR PRESS UTILITY DATE: 11/17/77 TIME: 17: 36: 14 PAGE 1

FROM WORK52, DSN=SYS77321,1172257,RA000,SN1URD4,DEBUGR1 LRECL=133 BLKSIZE=1330 RECFM=FB
TO FFA006, DSN=CN6370,SN1,RD4OUT,VERSIONS,FDEBUG,DATA MEMBER=FFA01 LRECL=3520 BLKSIZE=3520 RECFM=U

607 LINES WERE PRESSED INTO 11 BLOCK(S) OF COMPRESSED TEXT, CONDITION CODE 00

D. TRANSPORTATION DEBUG REPORT

SUPERWYLBUR PRESS UTILITY DATE: 11/17/77 TIME: 17: 36: 14 PAGE 1

FROM WORK52, DSN=SYS77321,1172257,RA000,SN1URD4,TRDBGRI LRECL=133 BLKSIZE=1330 RECFM=FB
TO FFA006, DSN=CN6370,SN1,RD4OUT,VERSIONS,FTDBG,DATA MEMBER=FFA01 LRECL=3520 BLKSIZE=3520 RECFM=U

607 LINES WERE PRESSED INTO 11 BLOCK(S) OF COMPRESSED TEXT, CONDITION CODE 00

TABLE R.2: OFACE LOG PRESS OUTPUT (VERSION S & VERSION U)

A. VERSION S

SUPERWLBUR PRESS UTILITY DATE: 11/22/77 TIME: 17: 23: 33 PAGE 1
 FROM WDRX32, DSN=SYS77326, T170428, RA000, SNIUDFCE, VLOG LRECL=133 BLKSIZE=1330 RECFM=FB
 TO FEAO12, DSN=CN6117LR2, OFACEOUT, LOG, DATA MEMBER=VERSIONS LRECL=3520 BLKSIZE=3520 RECFM=U

17 LINES WERE PRESSED INTO 1 BLOCK(S) OF COMPRESSED TEXT, CONDITION CODE 00

B. VERSION U

SUPERWLBUR PRESS UTILITY DATE: 11/22/77 TIME: 17: 23: 33 PAGE 1
 FROM WDRX32, DSN=SYS77326, T170428, RA000, SNIUDFCE, VLOG LRECL=133 BLKSIZE=1330 RECFM=FB
 TO FEAO12, DSN=CN6117LR2, OFACEOUT, LOG, DATA MEMBER=VERSIONU LRECL=3520 BLKSIZE=3520 RECFM=U

17 LINES WERE PRESSED INTO 1 BLOCK(S) OF COMPRESSED TEXT, CONDITION CODE 00

TABLE B.31 OFACE RESULTS (VERSION S)
FINAL VERSION OF DEMAND POINT REPORT-INCLUDING ALL SHIFTS
TRILLIONS OF RTUS • FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	112.16	195.79	302.39	641.03	535.22	293.77	127.06	60.59	225.26	153.78	2647.05
NGRS	173.24	443.82	517.71	401.67	1859.25	610.81	388.55	263.00	708.95	124.63	5491.63
DFRS	413.08	605.61	315.12	193.69	547.60	94.41	74.61	33.43	27.19	75.87	2380.61
LGRS	21.91	20.24	29.69	135.24	180.92	102.92	78.96	40.61	5.00	2.06	617.55
ELCH	108.02	221.79	213.32	388.84	378.83	261.77	99.95	74.74	308.30	109.50	2165.05
NGCH	74.64	169.57	178.74	286.63	700.89	225.79	164.71	140.67	312.52	100.71	2358.86
DFCH	220.20	189.52	138.15	81.24	229.84	70.78	47.43	46.86	24.60	67.39	1110.00
RFCH	138.77	273.01	57.60	38.67	246.83	91.14	14.63	33.25	5.30	15.33	914.54
ELIN	106.73	210.87	409.98	856.15	849.12	573.43	147.46	76.76	272.42	213.32	3716.44
NGIN	100.44	242.50	454.04	1145.27	1871.83	3897.93	373.75	312.90	932.40	313.06	9644.00
DFIN	17.79	38.68	136.56	115.11	134.25	123.18	32.88	83.61	67.78	72.92	822.77
RFIN	97.84	40.47	64.50	158.19	97.73	375.07	14.71	80.13	38.04	21.70	986.38
LGIN	31.54	20.46	40.28	90.86	157.33	156.57	71.03	21.87	83.20	6.49	679.65
CLIN	4.54	85.79	384.52	238.19	621.55	61.12	85.78	86.84	30.54	44.53	1645.41
GSTR	706.30	1142.65	1409.25	2622.99	2945.72	1792.12	878.78	508.72	1672.99	506.72	14180.23
DFTR	60.24	109.93	224.39	427.36	444.14	445.65	168.34	135.50	236.28	112.08	2363.92
JFTR	84.35	230.76	166.43	392.80	311.51	311.24	82.11	92.76	622.66	174.23	2470.86
RFTR	18.46	83.23	103.22	74.54	15.42	266.35	1.87	2.16	133.86	19.25	710.42
ELTR	0.10	8.30	3.80	0.0	1.30	0.0	0.10	0.0	1.00	0.0	14.60
NGTR	0.0	4.07	52.78	99.31	50.03	590.01	107.49	10.81	47.42	43.07	1003.00
LGTR	2.06	1.99	2.87	12.47	16.81	9.64	11.91	3.79	0.91	0.38	62.83
LCR	0.07	0.78	0.74	2.72	2.53	15.55	1.54	1.17	1.34	0.17	26.61
LGFS	24.79	56.05	40.63	60.66	177.19	1252.68	41.28	10.62	38.94	1.75	1704.60
LGFM	0.0	26.57	26.57	0.0	79.72	58.28	0.0	0.0	38.65	0.0	224.79
QLRM	0.0	91.39	97.91	1.30	135.36	177.44	6.99	7.82	96.36	5.69	620.27
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	40.66	74.86	87.50	193.05	282.30	167.71	75.83	51.73	120.20	59.68	1153.51
CLMC	0.16	4.56	25.16	8.41	25.84	0.07	1.72	0.45	0.07	1.38	67.99
CLTR	0.0	0.0	0.52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.52
PCIN	0.0	108.89	965.48	261.33	1141.42	32.23	9.00	97.89	60.20	0.0	2676.44

TABLE B.3 CONTD: FINAL VERSION OF DEMAND POINT REPORT • INCLUDING ALL SHIFTS • IN TRILLIONS OF BTU'S • FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELCS	138.00	247.16	409.00	421.63	644.45	324.74	144.29	73.31	267.10	170.72	3240.40
NGRS	187.19	404.72	514.50	362.24	1915.39	690.12	433.39	293.01	634.78	133.02	5560.36
DFRS	472.19	609.68	327.36	222.86	559.33	155.13	53.62	34.63	34.65	93.38	2541.82
LGRS	25.97	20.50	33.95	147.10	191.38	112.09	90.78	45.02	3.58	1.28	671.63
ELCH	131.48	248.63	250.46	491.73	443.59	273.91	113.28	93.99	346.21	120.91	2514.19
NGCM	79.60	144.23	153.71	254.08	575.85	177.62	122.80	105.81	238.69	93.09	1945.49
DFCM	246.48	185.94	151.58	97.19	250.00	81.68	48.46	55.39	26.92	78.81	1224.46
RFCM	127.68	233.75	83.96	33.83	276.28	119.26	9.80	38.03	3.89	12.93	849.42
ELIN	133.24	262.26	516.68	1086.42	1052.16	747.77	185.10	87.15	311.95	210.27	4593.00
NGIN	119.48	268.21	491.14	1316.99	1991.78	4625.08	379.12	311.77	998.65	363.55	10865.78
DFIN	21.46	45.30	171.70	153.20	171.39	179.08	42.19	110.44	86.02	97.05	1077.82
RFIN	97.20	33.09	52.89	173.70	105.65	700.80	11.66	110.15	37.04	19.00	1340.58
LGIN	39.64	24.18	48.65	117.14	196.00	213.47	92.04	27.28	102.97	8.00	869.57
CLIN	5.03	90.76	408.57	276.43	723.88	104.00	85.48	104.91	38.88	51.58	1887.52
GSTR	737.60	1131.32	1450.86	2814.18	3020.56	1913.46	901.65	540.61	1745.28	528.12	10783.64
DFTR	63.44	107.97	232.54	468.01	457.55	484.94	173.67	146.53	248.99	118.02	2501.86
JFTR	111.38	255.39	215.57	536.67	383.86	425.01	105.04	126.09	769.51	221.27	3149.79
RFTR	19.20	86.62	107.36	77.53	16.04	277.03	1.94	2.25	139.23	20.02	747.24
ELTR	0.10	8.30	3.80	0.0	1.30	0.0	0.10	0.0	1.00	0.0	14.60
NGRM	0.0	5.45	70.86	140.72	68.37	799.17	139.36	14.33	61.55	53.58	1353.39
LGRM	2.08	1.96	2.79	11.95	16.22	8.13	12.39	3.71	0.82	0.35	60.42
LGTR	0.05	0.66	0.63	2.25	2.09	12.83	1.27	0.97	1.11	0.14	22.00
LGFS	26.36	59.56	42.94	65.84	189.05	1337.76	43.91	11.31	41.14	1.88	1819.75
LGRM	0.0	36.72	36.72	0.0	110.17	80.54	0.0	0.0	53.42	0.0	317.58
OLRM	0.0	108.32	116.05	1.54	160.44	210.32	8.29	9.27	114.22	6.74	735.21
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	42.13	74.25	87.50	206.45	292.12	174.98	77.10	55.53	128.74	63.82	1202.62
CLMC	0.07	2.65	14.01	4.65	13.94	0.05	0.91	0.16	0.05	0.77	37.26
CLTR	0.0	0.0	0.29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.29
MCIN	0.0	114.42	1016.44	279.71	1209.63	35.06	9.63	104.24	64.73	0.0	2833.26

TABLE B.3 CONTD: FINAL VERSION OF DEMAND POINT REPORT - INCLUDING ALL SHIFTS - IN TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	157.72	290.35	510.45	1009.54	736.85	368.02	167.33	85.30	291.27	182.69	3744.52
NGRS	185.72	373.46	521.90	316.95	1949.99	722.95	401.80	328.21	720.00	165.84	5650.82
DFRS	537.20	665.04	353.89	264.54	585.57	226.25	54.16	39.15	36.93	103.59	2860.32
LGRS	28.94	71.68	39.20	169.04	215.37	126.43	100.75	52.82	3.39	1.08	750.69
ELCM	145.07	266.30	274.36	580.19	497.18	296.28	124.85	107.80	372.19	127.39	2791.61
NGCM	71.65	122.85	137.24	224.69	473.18	154.29	108.88	97.78	225.94	76.10	1690.61
DFCM	266.66	188.38	166.00	112.75	273.50	90.22	50.81	63.22	30.93	85.69	1328.17
RFCM	120.90	211.40	38.93	31.97	278.65	131.23	8.08	39.62	3.49	12.10	870.37
ELIN	157.81	311.62	620.76	1360.02	1248.39	909.91	227.33	98.21	361.49	227.72	5523.26
NGIN	131.44	294.49	554.40	1522.90	2391.06	5090.13	437.29	357.59	1030.95	382.14	12592.38
DFIN	25.50	53.41	207.06	195.25	207.07	236.29	51.33	135.04	103.49	121.60	1330.03
RFIN	106.55	33.49	54.47	208.60	121.20	1012.05	11.77	137.92	40.97	21.33	1746.36
LGIN	46.83	28.26	57.76	146.65	233.19	266.13	111.55	32.71	121.31	9.67	1050.05
CLIN	6.02	107.41	484.06	348.84	873.58	136.45	99.14	127.30	46.89	61.83	2293.53
CSYN	781.10	1164.69	532.00	3060.69	3188.58	2112.24	956.55	591.50	1871.95	567.80	15847.09
DFTR	66.25	108.15	241.19	509.43	474.23	534.09	181.33	159.45	263.55	125.38	2663.06
JFTR	127.96	269.97	250.25	657.73	435.77	546.02	125.58	158.50	877.37	261.54	3710.69
HFTR	19.52	88.05	109.13	78.81	16.30	281.61	1.97	2.28	141.53	20.35	754.57
ELTR	0.10	8.30	3.80	0.0	1.30	0.0	0.10	0.0	1.00	0.0	14.60
NGTR	0.0	6.75	88.00	181.34	85.99	995.54	168.63	17.66	74.51	63.02	1681.45
LGTR	2.06	1.93	2.74	11.73	15.92	7.41	11.88	3.66	0.80	0.34	56.48
LGTR	0.04	0.56	0.54	1.94	1.80	11.11	1.10	0.84	0.96	0.12	19.02
LGFS	27.88	63.18	45.35	71.13	201.19	1425.15	46.59	12.02	43.43	2.01	1937.64
LGTR	0.0	47.94	47.94	0.0	143.01	105.14	0.0	0.0	69.73	0.0	414.56
OLTR	0.0	128.39	137.55	1.83	190.18	249.29	9.82	10.99	135.39	7.99	871.44
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	44.15	76.04	87.50	225.06	314.49	186.56	80.11	61.67	144.23	71.78	1291.59
CLAC	0.04	1.77	9.25	3.04	9.13	0.03	0.59	0.09	0.03	0.50	24.48
CLTR	0.0	0.0	0.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18
MCTN	0.0	117.86	1048.95	292.78	1254.53	37.14	10.07	108.58	67.95	0.0	2937.87

TABLE B.3 CONTD: CONSERVATION SAVINGS - TRILLIONS OF BTU'S - FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELPS	0.89	1.58	2.38	4.91	4.26	2.28	1.02	0.49	1.73	1.19	20.74
NGHS	1.73	3.99	4.33	3.28	11.60	3.38	2.94	1.83	3.13	1.22	37.43
DFHS	2.16	3.41	2.25	1.50	4.14	0.84	0.90	0.48	0.32	0.61	10.62
LGHS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCH	0.74	1.52	1.46	2.66	2.59	1.79	0.68	0.51	2.11	0.75	14.82
NGCH	1.95	4.21	4.43	7.11	17.38	5.60	4.08	3.49	7.75	2.50	58.50
DFCH	0.77	0.67	0.49	0.29	0.81	0.25	0.17	0.16	0.09	0.24	3.92
RFCH	6.04	11.88	2.51	1.68	10.74	3.97	0.64	1.45	0.23	0.67	39.80
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTR	0.14	0.23	0.28	0.52	0.59	0.36	0.18	0.10	0.33	0.10	2.84
DFTR	0.31	0.57	1.17	2.23	2.32	2.33	0.88	0.71	1.24	0.59	12.36
JFTR	2.39	6.55	4.78	11.15	8.84	8.83	2.33	2.63	17.67	4.95	70.13
RFTR	0.24	1.07	1.33	0.96	0.20	3.43	0.02	0.03	1.72	0.25	4.24
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QLTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.02	0.51	2.79	0.47	2.87	0.01	0.19	0.05	0.01	0.15	7.55
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: CONSERVATION SAVINGS - TRILLIONS OF BTU'S - FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
FLRS	1.75	3.16	5.14	10.25	8.16	4.05	1.84	0.94	3.33	2.15	40.78
NGRS	1.78	3.80	4.26	3.11	11.76	3.61	3.06	1.92	2.81	1.25	37.37
DFRS	4.10	5.67	3.48	2.44	6.21	1.65	1.01	0.61	0.48	1.02	26.66
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCH	2.07	3.92	3.94	7.74	6.98	4.32	1.78	1.49	5.59	1.96	39.79
NGCM	7.37	13.35	14.23	23.52	53.29	16.45	11.37	9.85	23.08	8.88	181.39
DFCM	0.79	0.60	0.49	0.31	0.80	0.26	0.16	0.18	0.10	0.26	3.94
PFCH	15.00	27.46	5.16	3.98	32.45	14.02	1.15	4.49	0.47	1.56	105.75
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTM	0.15	0.23	0.29	0.56	0.60	0.38	0.18	0.11	0.35	0.11	2.96
DFTH	0.31	0.52	1.12	2.26	2.21	2.34	0.84	0.71	1.20	0.57	12.07
JFTR	2.60	5.96	5.03	12.52	8.96	9.92	2.45	2.94	17.95	5.16	73.49
PFTR	0.24	1.10	1.36	0.98	0.20	3.51	0.02	0.03	1.76	0.25	9.66
ELTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OLYX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELHC	0.01	0.54	2.86	0.95	2.84	0.01	0.19	0.03	0.01	0.16	7.60
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: CONSERVATION SAVINGS - TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	2.12	3.93	6.85	13.34	9.86	4.91	2.27	1.16	3.85	2.44	50.73
NGRS	1.43	3.02	3.37	2.37	8.23	2.40	2.23	1.45	1.81	1.06	27.38
PLRS	6.06	7.83	4.64	3.47	7.96	2.81	1.15	0.75	6.59	1.38	36.64
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	3.85	7.06	7.27	15.38	13.17	7.86	3.31	2.89	10.39	3.59	74.77
NGCM	12.26	21.01	23.47	38.43	80.85	27.10	18.63	16.91	42.76	14.10	235.53
DFCM	0.78	0.55	0.48	0.33	0.80	0.26	0.15	0.19	0.10	0.26	3.89
PFCH	27.92	48.81	8.99	7.38	64.29	30.33	1.87	9.25	0.86	3.00	202.69
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTR	0.16	0.23	0.31	0.62	0.64	0.42	0.19	0.12	0.37	0.11	3.17
DFTR	0.29	0.48	1.07	2.25	2.10	2.36	0.80	0.70	1.16	0.55	11.77
JFTR	2.51	5.28	4.90	12.88	8.53	10.69	2.46	3.10	17.18	5.12	72.64
PFTR	0.25	1.12	1.39	1.01	0.21	3.59	0.03	0.03	1.81	0.26	4.69
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLXC	0.01	0.14	1.75	0.58	1.72	0.01	0.11	0.02	0.01	0.10	0.8
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: SOLAR AND GEOTHERMAL SAVINGS • TRILLIONS OF BTU'S • FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGNS	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCM	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFCH	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: SOLAR AND GEOTHERMAL SAVINGS - TRILLIONS OF BTU'S - FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.25	0.28	0.41	1.08	0.20	0.63	0.29	0.10	0.43	0.47	4.14
NGRS	0.34	0.45	0.52	0.48	0.58	1.11	0.52	0.30	1.53	0.38	0.21
DFRS	0.81	0.62	0.30	0.29	0.17	0.27	0.11	0.05	0.05	0.26	2.92
LGFRS	0.05	0.02	0.03	0.19	0.06	0.20	0.16	0.06	0.01	0.00	0.79
ELCM	0.05	0.08	0.10	0.20	0.05	0.19	0.07	0.47	8.72	3.41	13.34
NGCM	0.03	0.05	0.07	0.11	0.06	0.14	0.08	0.62	10.68	2.69	14.73
DFCM	0.10	0.06	0.06	0.04	0.03	0.06	0.03	0.27	0.73	2.14	3.51
RFCH	0.06	0.08	0.01	0.02	0.03	0.09	0.01	0.20	0.11	0.39	0.49
ELIN	0.0	0.0	0.0	0.0	0.0	0.07	0.0	0.40	8.00	5.81	14.29
NGIN	0.0	0.0	0.0	0.0	0.0	0.46	0.0	1.50	31.42	8.56	41.44
DFIN	0.0	0.0	0.0	0.0	0.0	0.02	0.0	0.50	2.14	2.73	5.39
RFIN	0.0	0.0	0.0	0.0	0.0	0.07	0.0	0.50	0.95	0.52	2.04
LGIN	0.0	0.0	0.0	0.0	0.0	0.02	0.0	0.13	2.65	0.23	3.03
CLIN	0.0	0.0	0.0	0.0	0.0	0.01	0.0	0.48	0.95	1.49	2.95
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGPM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLPM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.00	0.00	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.03	0.07
CLTW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: SOLAR AND GEOTHERMAL SAVINGS - TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.75	1.18	1.35	3.59	0.52	1.69	0.73	0.31	0.83	1.06	12.02
NGRS	0.92	1.51	1.42	1.12	1.37	2.91	1.13	0.89	2.83	0.80	14.92
DFRS	2.29	2.23	0.86	0.86	0.42	1.01	0.19	0.13	0.11	0.59	6.69
LGRS	0.14	0.08	0.10	0.58	0.15	0.57	0.41	0.18	0.01	0.01	2.23
ELCH	0.16	0.30	0.28	0.66	0.15	0.55	0.19	1.23	19.97	8.17	31.66
NGCH	0.11	0.16	0.18	0.29	0.11	0.37	0.17	1.22	24.35	6.46	33.41
DFCH	0.29	0.19	0.15	0.11	0.08	0.16	0.07	0.65	1.74	5.27	8.72
RFCH	0.15	0.23	0.04	0.04	0.10	0.28	0.01	0.50	0.24	0.92	2.51
ELIN	0.0	0.0	0.0	0.0	0.0	0.27	0.0	0.96	19.99	14.23	35.25
NGIN	0.0	0.0	0.0	0.0	0.0	1.65	0.0	3.54	80.95	21.64	107.78
DFIN	0.0	0.0	0.0	0.0	0.0	0.07	0.0	1.31	5.70	7.82	14.89
RFIN	0.0	0.0	0.0	0.0	0.0	0.30	0.0	1.35	2.39	1.34	5.39
LGIN	0.0	0.0	0.0	0.0	0.0	0.08	0.0	0.33	6.92	0.63	7.96
CLIN	0.0	0.0	0.0	0.0	0.0	0.06	0.0	1.18	2.46	3.93	7.65
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.00	0.01	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.02	0.16
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCTN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: INDUSTRIAL BOILER SHIFTS - TRILLIONS OF BTU'S - FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA 10	U.S.
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLHC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: INDUSTRIAL BOILER SHIFTS - TRILLIONS OF BTU'S - FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
USTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OLPH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLHC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: INDUSTRIAL BOILER SHIFTS - TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTO: RESIDENTIAL AND COMMERCIAL NATURAL GAS HOOKUPS SHIFTS • TRILLIONS OF BTU'S • FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTX	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: RESIDENTIAL AND COMMERCIAL NATURAL GAS HOOKUPS SHIFTS - TRILLIONS OF BTU'S - FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RCFM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: RESIDENTIAL AND COMMERCIAL NATURAL GAS HOOKUPS SHIFTS - TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DECM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DEIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGDM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLDM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.3 CONTD: INITIAL PRICES IN DOLLARS PER MILLION BTU'S FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELSP	12.98	13.98	11.10	8.78	10.03	9.63	10.17	8.18	10.75	5.00	9.96
NGSP	3.43	2.96	2.42	1.97	1.96	1.62	1.70	1.44	2.26	2.53	2.10
DFSP	3.20	3.09	3.12	3.15	2.90	2.99	2.37	3.02	3.13	3.10	3.05
LGSP	3.53	3.24	3.19	3.11	2.85	2.91	3.47	2.97	3.11	3.06	3.06
ELCHP	12.77	14.80	10.46	9.04	9.91	8.81	9.36	7.16	9.52	5.11	9.90
NGCHP	2.88	2.46	2.09	1.60	1.72	1.40	2.01	1.57	1.90	2.00	1.84
DFCHP	2.92	2.85	2.85	2.85	2.74	2.76	2.40	2.86	2.88	2.85	2.82
RFCHP	2.31	2.31	2.42	2.16	2.46	2.22	1.82	2.67	2.60	2.54	2.35
ELINP	10.04	7.84	7.89	6.48	6.89	6.43	7.06	4.78	7.71	2.63	6.76
NGINP	2.44	1.90	1.57	1.28	1.75	1.16	1.45	1.12	1.51	1.43	1.39
DFINP	2.91	2.83	2.88	2.88	2.74	2.74	2.58	2.88	2.88	2.85	2.82
RFINP	2.33	2.34	2.38	2.16	2.44	2.25	2.00	2.62	2.60	2.60	2.32
LGINP	3.17	2.99	2.96	2.88	2.70	2.73	2.79	2.79	2.89	2.84	2.81
CLINP	1.42	1.27	1.09	1.21	1.14	1.40	0.81	0.93	1.23	1.07	1.13
GSTEP	4.86	5.01	4.81	4.79	4.88	4.66	4.80	4.80	4.94	4.88	4.84
DFINP	3.89	3.81	3.86	3.85	3.71	3.72	3.55	3.85	3.85	3.82	3.78
JFINP	3.39	3.27	3.35	3.35	3.06	3.17	3.03	3.17	3.20	3.19	3.22
RFINP	2.33	2.36	2.38	2.16	2.44	2.25	2.00	2.62	2.60	2.60	2.35

TABLE B.3 CONTD: INITIAL PRICES IN DOLLARS PER MILLION BTU'S FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELSP	12.76	13.16	11.06	9.40	10.38	11.73	10.36	8.16	11.73	5.89	10.49
NGSP	3.44	3.50	3.03	2.60	2.52	1.94	1.76	1.76	3.33	3.06	2.62
DFSP	3.28	3.34	3.49	3.56	3.18	3.28	3.09	3.26	3.27	3.27	3.12
LGSP	3.52	3.59	3.85	3.89	3.43	3.50	3.33	3.38	3.47	3.47	3.55
ELCHP	12.68	14.68	10.57	9.51	10.36	11.22	10.13	7.44	10.93	5.87	10.59
NGCHP	1.27	2.98	2.64	2.14	2.29	2.16	3.10	2.51	2.89	2.56	2.53
DFCHP	3.07	3.12	3.16	3.14	3.02	3.06	2.94	3.06	3.03	3.03	3.08
RFCHP	2.51	2.54	2.45	2.54	2.72	2.57	2.73	2.79	2.57	2.51	2.63
ELINP	10.77	7.69	8.59	8.01	8.14	9.78	8.54	6.17	9.44	4.21	8.36
NGINP	2.78	2.39	2.28	1.97	2.88	1.91	2.80	2.10	2.29	1.98	2.21
DFINP	3.07	3.11	3.24	3.23	3.02	3.05	2.93	3.09	3.03	3.03	3.10
RFINP	2.56	2.68	2.78	2.51	2.70	2.56	2.70	2.74	2.57	2.62	2.59
LGINP	3.32	3.36	3.53	3.59	3.28	3.31	3.20	3.20	3.26	3.26	3.33
CLINP	1.70	1.60	1.51	1.68	1.46	1.35	1.40	1.15	1.47	1.47	1.40
GSTEP	5.21	5.40	5.18	5.11	5.10	4.93	4.98	4.95	5.21	5.23	5.12
DFINP	4.04	4.08	4.22	4.21	3.99	4.02	3.91	4.06	4.01	4.01	4.06
JFINP	3.40	3.49	3.71	3.75	3.32	3.43	3.23	3.43	3.42	3.42	3.48
RFINP	2.56	2.68	2.78	2.51	2.70	2.56	2.70	2.74	2.57	2.62	2.61

TABLE 8.3 CONTD: INITIAL PRICES IN DOLLARS PER MILLION BTU'S FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRSP	13.77	14.00	11.93	10.02	11.23	12.43	10.61	9.07	12.23	6.60	11.21
NGRSP	4.57	4.15	3.49	3.13	3.30	2.36	2.59	2.25	3.10	2.75	3.14
DFRSP	3.49	3.56	3.71	3.77	3.40	3.50	3.31	3.47	3.50	3.50	3.54
LGRSP	3.80	3.87	4.14	4.16	3.69	3.77	3.60	3.65	3.70	3.76	3.63
FLCHP	13.70	15.52	11.44	10.13	11.21	11.91	10.38	8.34	11.43	6.58	11.28
NGCHP	4.10	3.63	3.09	2.69	3.01	2.49	3.30	2.67	2.65	3.45	2.49
CFCHP	3.29	3.34	3.38	3.38	3.24	3.28	3.16	3.28	3.26	3.26	3.30
RFCHP	2.67	2.75	3.01	2.70	2.88	2.72	2.88	3.06	2.73	2.67	2.60
ELINP	11.78	8.54	9.45	8.62	8.99	10.47	8.79	7.07	9.94	4.92	4.09
NGINP	3.61	3.04	2.71	2.50	2.78	2.24	3.00	2.27	3.25	3.13	2.57
DFINP	3.28	3.33	3.46	3.45	3.23	3.26	3.15	3.31	3.26	3.26	3.32
RFINP	2.72	2.84	2.94	2.67	2.86	2.72	2.86	3.02	2.73	2.77	2.75
LGINP	3.60	3.65	3.82	3.85	3.55	3.58	3.47	3.47	3.55	3.55	3.61
CLINP	1.74	1.64	1.54	1.72	1.50	1.44	1.44	1.21	1.56	1.66	1.53
GSTRP	5.46	5.65	5.43	5.36	5.35	5.18	5.24	5.25	5.49	5.50	5.36
DFTRP	4.26	4.30	4.43	4.42	4.21	4.24	4.12	4.28	4.24	4.24	4.26
JFTRP	3.61	3.70	3.92	3.96	3.53	3.64	3.44	3.64	3.64	3.64	3.70

TABLE 8.4: DFEACE RESULTS (VERSION U)
FINAL VERSION OF DEMAND POINT REPORT-INCLUDING ALL SHIFTS
IN MILLIONS OF BTU'S - FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	109.06	190.38	294.04	623.33	520.44	285.69	123.55	58.91	219.04	149.54	2573.48
NGRS	162.08	415.70	485.19	376.48	1746.07	574.02	364.40	246.80	667.01	116.63	5154.55
DFRS	347.71	568.03	245.06	181.22	512.46	88.22	67.55	31.93	25.31	70.96	2224.44
LGRS	21.91	20.24	29.69	135.24	180.92	102.92	78.96	40.61	5.00	2.06	617.55
FLCH	104.58	214.73	206.53	376.47	366.78	253.44	96.77	72.37	298.49	106.01	2096.17
NGCH	75.58	154.66	167.23	268.18	655.78	211.26	154.11	131.62	292.40	94.23	2207.05
CFCH	219.60	149.00	137.78	81.02	229.22	70.59	47.30	46.73	24.54	47.20	1112.48
RFCH	121.93	239.88	50.61	33.98	216.88	80.08	12.86	29.22	4.66	13.47	803.55
ELIN	103.66	204.80	398.17	831.68	424.67	556.91	143.21	74.55	264.57	207.17	3604.40
NGIN	49.11	239.29	448.04	1130.15	1847.12	3846.48	368.82	308.67	920.09	308.43	9510.70
DFIN	17.82	36.73	135.73	115.25	134.41	123.33	32.92	83.71	67.86	73.01	823.76
RFIN	83.20	34.41	54.84	134.51	83.10	318.92	12.51	68.13	32.34	10.45	840.42
LGIN	31.54	20.46	40.28	90.88	157.33	156.57	71.03	21.87	63.20	6.49	674.65
CLIN	4.47	84.39	378.21	234.28	411.35	62.08	84.37	85.42	30.04	43.80	1810.42
GSTR	703.76	1156.53	1400.18	2613.55	2935.11	1785.67	875.62	506.89	1666.97	504.89	14135.14
DFTR	60.24	109.93	224.39	427.36	444.14	445.65	168.34	135.50	236.28	112.08	2763.42
JFTR	84.35	230.76	168.43	392.80	311.51	311.24	82.11	92.76	622.66	174.23	2470.66
RFTR	18.46	83.28	103.22	74.54	15.42	266.35	1.87	2.16	133.86	19.25	710.42
ELTR	0.10	6.30	3.80	0.0	1.30	0.0	0.0	0.0	0.0	0.0	14.00
NGRM	0.0	4.07	52.78	99.31	50.03	590.01	107.49	10.81	47.42	43.07	1005.06
LGCM	2.06	1.99	2.87	12.47	16.81	9.84	11.91	3.79	0.91	0.38	62.03
CFTR	0.07	0.78	0.74	2.72	2.53	15.55	1.54	1.17	0.17	0.17	20.01
LGRS	24.79	56.05	40.63	60.66	177.19	1252.68	41.28	10.62	38.94	1.75	1704.60
LGCM	0.0	26.57	0.0	0.0	79.72	58.28	0.0	0.0	38.65	0.0	224.79
CFRM	0.0	91.39	97.91	1.30	135.36	177.44	6.99	7.82	96.36	5.69	620.27
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	40.66	74.86	87.50	193.05	282.30	167.71	75.83	51.73	120.20	59.68	1153.51
CLMC	0.12	3.42	18.86	6.46	19.38	0.06	1.29	0.34	0.06	1.01	50.99
CLTR	0.0	0.0	0.52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.52
PCIN	0.0	108.89	965.48	261.33	1141.42	32.23	9.00	97.89	60.20	0.0	2670.44

TABLE B.4 CONTD: FINAL VERSION OF DEMAND POINT REPORT - INCLUDING ALL SHIFTS - IN TRILLIONS OF BTU'S - FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
FLRS	129.14	210.70	340.57	698.75	564.34	291.62	128.40	63.61	232.34	152.18	2811.65
NGRS	158.02	388.40	534.91	476.01	1745.69	665.59	341.47	264.89	581.80	137.07	5343.84
DFRS	407.73	523.54	272.05	168.29	473.61	82.53	44.50	27.88	23.15	65.27	2040.56
LGFRS	25.75	20.25	30.53	138.06	184.08	103.61	80.88	41.43	3.54	1.26	624.41
ELCM	123.57	233.85	235.47	462.20	417.54	257.17	106.34	87.87	311.35	109.90	2345.27
NGCM	62.20	112.82	128.91	209.53	493.02	169.00	98.09	93.09	181.54	78.52	1624.71
DFCM	243.37	183.72	140.20	84.05	232.87	72.45	47.50	47.81	23.67	65.38	1141.01
RFCM	97.46	178.62	33.57	25.83	175.60	62.61	7.47	22.68	2.77	9.35	615.97
ELIN	124.44	244.95	482.58	1014.72	982.71	698.27	172.88	80.92	279.44	190.24	4271.15
NGIN	114.11	250.38	450.62	1153.95	1764.52	3926.62	338.94	287.25	890.50	309.00	9465.67
DFIN	19.59	33.27	132.76	125.70	139.29	132.37	38.17	95.52	64.08	74.83	655.56
RFIN	83.72	22.60	38.18	133.61	79.99	482.06	9.95	89.60	25.67	13.63	979.01
LGIN	35.88	17.58	37.25	95.25	157.84	156.21	82.58	23.40	75.97	6.11	680.07
CLIN	25.53	144.73	549.76	545.76	1108.47	1090.26	147.93	170.78	166.37	123.47	4073.08
GSTR	709.02	1087.49	1394.65	2705.14	2903.52	1839.32	866.72	519.66	1677.65	507.66	14210.83
DFTR	63.64	107.97	232.54	468.01	457.55	484.94	173.67	146.53	248.99	118.02	2501.86
JFTR	111.38	255.39	215.57	536.67	383.86	425.01	105.04	126.09	769.51	221.27	3144.79
RFTR	19.20	86.62	107.36	77.53	16.04	277.03	1.94	2.25	134.23	20.02	747.24
ELTR	0.10	8.30	3.80	0.0	1.30	0.0	0.10	0.0	1.00	0.0	14.60
NGTR	0.0	5.45	70.86	140.72	68.37	799.17	139.36	14.33	61.55	53.58	1353.39
LGCM	2.08	1.96	2.79	11.95	16.22	8.13	12.39	3.71	0.82	0.35	60.42
LGTR	0.05	0.66	0.63	2.25	2.09	12.83	1.27	0.97	1.11	0.14	22.00
LGFS	26.36	59.56	42.94	65.84	189.05	1337.76	43.91	11.31	41.14	1.88	1819.75
LGFM	0.0	36.72	36.72	0.0	110.17	80.54	0.0	0.0	53.42	0.0	317.58
OLGM	0.0	108.32	116.05	1.54	160.44	210.32	8.29	9.27	114.22	6.74	755.21
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	41.22	72.66	87.50	201.31	281.78	172.01	75.79	53.84	123.34	61.15	1170.01
CLMC	0.05	1.78	9.42	3.12	9.43	0.03	0.61	0.11	0.03	0.48	25.65
CLTR	0.0	0.0	0.29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.29
MCIN	0.0	114.42	1016.44	279.71	1209.03	35.06	9.63	104.24	64.73	0.0	2833.26

TABLE B.4 CONTD: FINAL VERSION OF DEMAND POINT REPORT - INCLUDING ALL SHIFTS - IN TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	144.34	222.98	375.77	759.58	596.63	302.16	135.29	67.24	238.08	153.29	2995.35
NGRS	151.85	447.74	661.55	678.00	1885.61	796.57	388.52	311.82	667.20	182.74	6171.78
DFRS	460.77	508.61	266.50	160.10	470.89	70.00	44.84	26.99	22.68	62.65	2094.11
LGRS	28.37	19.94	30.17	135.93	183.63	101.75	79.81	40.86	3.34	1.06	624.56
ELCH	133.22	244.68	252.09	532.91	458.58	271.39	114.51	96.60	277.03	98.63	2474.64
NGCH	52.05	89.30	121.86	188.61	437.46	175.94	81.38	92.24	127.60	60.99	1427.41
DFCH	262.54	185.54	139.49	83.45	232.47	71.86	47.28	46.03	18.61	52.50	1159.76
RFCH	78.27	136.96	25.23	20.70	111.82	27.80	5.21	11.68	1.47	4.87	424.03
ELIN	152.10	300.34	593.29	1310.79	1203.20	876.41	219.11	92.38	288.90	188.67	5230.17
NGIN	131.67	255.00	435.37	1295.53	2065.16	4676.14	388.05	290.09	714.17	280.18	10731.36
DFIN	7.80	0.0	0.0	63.16	15.28	200.02	44.88	37.21	38.53	60.91	467.00
RFIN	36.55	0.0	0.0	75.03	14.88	887.23	10.39	43.17	16.35	11.10	1094.70
LGIN	15.67	0.0	0.0	51.52	26.44	233.39	97.73	9.96	47.38	4.97	467.07
CLIN	120.90	277.00	977.12	956.52	1758.18	980.69	179.08	393.65	334.02	162.42	6139.57
GSTR	729.71	1088.07	1431.21	2878.03	2978.82	1973.28	893.63	552.58	1748.80	539.45	14804.56
DFTR	66.25	108.15	241.19	509.43	474.23	534.09	181.33	159.45	263.55	125.38	2663.96
JFTR	127.90	269.97	250.25	657.73	435.77	546.02	125.58	158.50	877.37	281.54	3710.69
RFTR	19.52	88.05	109.13	78.81	16.30	281.61	1.97	2.28	141.53	20.35	759.57
ELTR	0.13	8.30	3.80	0.0	1.30	0.0	0.10	0.0	1.00	0.0	14.60
NGTR	0.0	6.75	88.00	181.34	85.99	995.54	168.63	17.66	74.51	63.02	1681.45
LGTR	2.06	1.93	2.74	11.73	15.92	7.41	11.88	3.66	0.80	0.34	50.46
LGTR	0.04	0.56	0.54	1.94	1.80	11.11	1.10	0.84	0.96	0.12	19.62
LGFS	27.88	63.18	45.35	71.13	201.19	1425.15	46.59	12.02	43.43	2.01	1937.94
LGRM	0.0	47.94	47.94	0.0	143.81	105.14	0.0	0.0	69.73	0.0	414.56
DLRM	0.0	128.39	157.55	1.83	190.18	249.29	9.82	10.99	135.39	7.99	871.44
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	42.29	72.63	87.50	214.04	292.72	180.30	77.42	58.00	132.43	65.91	1223.44
ELMC	0.04	1.52	7.97	2.61	7.97	0.03	0.51	0.08	0.02	0.34	21.07
CLTR	0.0	0.0	0.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18
MCIN	0.0	117.86	1095.95	292.78	1254.53	37.14	10.07	108.58	67.95	0.0	2937.87

TABLE B.4 CONTD: CONSERVATION SAVINGS - TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	3.99	6.99	10.73	22.61	19.04	10.36	4.53	2.17	7.94	5.44	93.81
NGRS	12.90	32.11	16.86	28.47	124.79	40.17	27.09	18.03	45.07	9.22	374.71
DFRS	27.53	40.99	22.31	13.98	39.28	7.03	6.06	2.88	2.20	5.52	167.76
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCH	4.18	8.58	8.25	15.03	14.65	10.12	3.86	2.89	11.92	4.23	83.71
NGCH	7.01	15.12	15.94	25.55	62.49	20.13	14.69	12.54	27.66	8.98	219.31
DFCH	1.37	1.18	0.86	0.51	1.43	0.44	0.30	0.29	0.15	0.42	6.94
RFCH	22.88	45.01	9.50	6.38	40.70	15.03	2.41	5.48	0.87	2.53	150.79
ELIN	3.07	6.07	11.81	24.66	24.45	16.51	4.25	2.21	7.85	6.14	107.03
NGIN	1.33	3.20	5.99	15.12	24.71	51.45	4.93	4.13	12.31	4.13	127.30
DFIN	-0.02	-0.05	-0.16	-0.14	-0.16	-0.15	-0.04	-0.10	-0.08	-0.09	-0.99
RFIN	14.45	6.06	9.66	23.68	14.63	56.15	2.20	12.00	5.69	3.25	147.96
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.87	1.41	6.31	3.91	10.19	1.04	1.41	1.42	0.50	0.73	20.48
GSTR	2.08	4.34	5.36	9.97	11.20	6.81	3.34	1.93	6.36	1.93	53.92
DFTR	0.81	0.57	1.17	2.23	2.32	2.33	0.88	0.71	1.24	0.59	12.30
JFTR	2.39	6.55	4.78	11.15	8.84	8.83	2.33	2.63	17.67	4.95	76.13
RFTR	0.24	1.07	1.33	0.96	0.20	3.43	0.02	0.03	1.72	0.25	4.24
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLHC	0.06	1.65	9.08	3.11	9.33	0.03	0.62	0.16	0.03	0.79	24.35
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 8.4 CONTD: CONSERVATION SAVINGS - TRILLIONS OF BTU'S - FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELFS	9.46	16.96	27.98	56.14	44.13	22.20	9.91	5.04	18.26	11.70	221.80
NGRS	29.40	63.43	78.52	55.72	276.24	97.42	64.19	42.84	87.75	20.86	816.36
DFRS	64.60	85.00	47.65	32.73	82.39	22.60	9.75	6.12	5.54	13.74	370.14
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	9.71	18.37	18.50	36.33	32.76	20.24	8.37	6.98	26.21	9.18	180.64
NGCM	24.60	44.56	47.50	78.51	177.88	54.00	37.95	32.87	77.02	29.65	605.43
DFCM	3.41	2.57	2.10	1.35	3.46	1.13	0.67	0.77	0.41	1.12	17.00
RFCM	44.93	82.26	15.47	11.91	97.20	41.99	3.45	13.45	1.41	4.69	316.74
ELIN	8.79	17.31	34.10	71.70	69.44	49.36	12.22	5.78	21.12	14.26	304.08
NGIN	0.37	0.83	1.52	4.08	6.17	14.34	1.18	0.97	3.19	1.15	33.61
DFIN	-0.16	-0.34	-1.27	-1.13	-1.27	-1.33	-0.31	-0.82	-0.65	-0.74	-6.02
RFIN	4.27	1.45	2.32	7.63	4.61	30.77	0.51	4.86	1.67	0.86	50.44
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	-0.50	-6.98	-40.21	-27.34	-71.59	-10.29	-8.45	-10.42	-3.94	-5.25	-180.97
GSTR	9.48	14.55	18.66	36.19	38.84	24.60	11.59	6.95	22.44	6.79	190.09
DFTR	0.31	0.52	1.12	2.26	2.21	2.34	0.84	0.71	1.20	0.57	12.07
JFTR	2.60	5.96	5.03	12.52	8.96	9.92	2.45	2.94	17.95	5.16	73.49
RFTR	0.24	1.10	1.36	0.98	0.20	3.51	0.02	0.03	1.76	0.25	6.46
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLHC	0.0	1.39	7.37	2.45	7.32	0.03	0.48	0.08	0.63	0.47	19.00
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.4 CONTD: CONSERVATION SAVINGS - TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELPS	12.35	22.75	39.83	78.73	57.46	28.77	13.12	6.69	22.70	14.30	298.70
NGRS	31.65	64.11	86.27	53.71	305.50	111.21	65.11	51.80	108.48	27.44	905.27
GRPS	71.52	90.19	49.99	37.40	83.93	31.31	9.65	6.59	5.72	14.77	401.07
LGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	14.95	27.45	28.28	59.80	51.20	30.56	12.87	11.23	40.38	13.96	290.67
NGCM	31.46	53.92	60.24	98.62	207.47	69.55	47.80	43.40	109.72	36.19	758.36
ELCH	3.56	2.52	2.22	1.51	3.65	1.21	0.68	0.85	0.44	1.21	17.83
NGCH	69.79	122.02	22.47	18.46	160.71	75.82	4.66	23.13	2.15	7.51	500.71
ELIN	5.71	11.26	22.47	49.23	45.19	32.95	8.23	3.59	13.81	8.76	201.23
NGIN	-0.22	-0.50	-0.94	-2.59	-4.06	-9.34	-0.74	-0.61	-1.89	-0.69	-21.59
ELIN	-0.11	-0.24	-0.93	-0.88	-0.93	-1.04	-0.23	-0.61	-0.49	-0.58	-0.65
NGIN	-0.61	-0.19	-0.31	-1.19	-0.69	-5.77	-0.07	-0.79	-0.25	-0.13	-10.00
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	-0.43	-7.70	-34.71	-25.01	-62.64	-9.93	-7.11	-9.21	-3.54	-4.71	-164.99
ELTR	11.49	17.13	22.53	45.31	46.90	31.07	14.07	8.70	27.53	8.35	253.08
NGTR	0.29	0.48	1.07	2.25	2.10	2.36	0.80	0.70	1.16	0.55	11.77
ELTR	2.51	5.28	4.90	12.88	8.53	10.69	2.46	3.10	17.18	5.12	72.64
NGTR	0.25	1.12	1.39	1.01	0.21	3.59	0.03	0.03	1.81	0.26	4.69
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGPS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0								

TABLE 8.4 CONTD: SOLAR AND GEOTHERMAL SAVINGS • TRILLIONS OF BTU'S • FDR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.4 CONTD: SOLAR AND GEOTHERMAL SAVINGS - TRILLIONS OF BTU'S - FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	1.40	1.50	2.32	6.16	1.24	3.23	1.27	0.48	3.36	2.72	23.69
NGRS	1.89	2.45	2.91	2.71	3.66	0.81	3.80	1.92	7.93	2.11	30.14
DFRS	4.77	3.70	1.65	1.67	1.07	1.54	0.48	0.23	0.44	1.49	17.23
LGRS	0.20	0.12	0.19	1.09	0.36	1.10	0.79	0.29	0.04	0.02	4.28
ELCH	0.32	0.43	0.53	1.15	0.32	1.00	0.41	1.10	22.97	7.20	33.41
NGCH	0.21	0.25	0.35	0.64	0.44	0.70	0.48	1.34	17.35	5.98	27.74
DFCH	0.59	0.30	0.32	0.22	0.18	0.30	0.18	0.64	1.90	4.63	9.25
RFCH	0.34	0.42	0.10	0.09	0.22	0.48	0.04	0.49	0.28	0.85	3.11
ELIN	0.0	0.0	0.0	0.0	0.0	0.22	0.0	0.86	19.39	11.58	32.05
NGIN	0.0	0.0	0.0	0.0	0.0	1.39	0.0	3.07	62.42	19.94	86.83
DFIN	0.0	0.0	0.0	0.0	0.0	4.05	0.0	1.09	5.34	5.35	11.83
RFIN	0.0	0.0	0.0	0.0	0.0	0.21	0.0	1.08	2.30	1.05	4.04
LGIN	0.0	0.0	0.0	0.0	0.0	0.06	0.0	0.27	6.40	0.44	7.17
CLIN	0.0	0.0	0.0	0.0	0.0	0.03	0.0	1.03	2.41	2.84	8.32
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OLPH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLHC	0.00	0.02	0.09	0.04	0.03	0.00	0.01	0.00	0.00	0.07	0.27
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.4 CONTD: SOLAR AND GEOTHERMAL SAVINGS - TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA 10	U.S.
ELRS	3.90	5.88	7.31	19.50	2.84	8.73	3.13	1.41	5.71	5.44	63.86
NGRS	4.57	7.52	7.43	6.09	7.45	16.97	7.45	5.39	13.99	4.90	81.75
DFRS	13.26	13.43	5.07	5.11	2.26	5.36	1.02	0.65	0.73	3.08	44.47
LGFS	0.71	0.43	0.55	3.22	0.82	2.96	1.86	0.86	0.07	0.03	11.52
ELCM	0.91	1.53	1.55	3.52	0.71	2.74	0.96	4.10	85.14	26.56	127.73
NGCM	0.51	0.81	0.88	1.55	0.78	1.67	0.96	4.24	61.96	16.45	91.84
DFCM	1.63	1.06	0.92	0.67	0.38	0.82	0.38	2.34	6.93	17.42	32.55
RFCH	0.91	1.46	0.26	0.23	0.48	1.46	0.07	1.81	0.97	3.06	10.71
ELIN	0.0	0.0	0.0	0.0	0.0	0.62	0.0	3.20	78.78	44.52	127.32
NGIN	0.0	0.0	0.0	0.0	0.0	4.94	0.0	11.66	229.61	74.30	320.51
DFIN	0.0	0.0	0.0	0.0	0.0	0.21	0.0	4.40	22.55	23.81	50.97
RFIN	0.0	0.0	0.0	0.0	0.0	0.91	0.0	4.50	8.95	4.17	10.53
LGIN	0.0	0.0	0.0	0.0	0.0	0.24	0.0	1.07	26.48	1.89	24.68
CLIN	0.0	0.0	0.0	0.0	0.0	0.12	0.0	4.15	10.19	12.10	20.56
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.00	0.04	0.16	0.07	0.04	0.00	0.01	0.01	0.01	0.14	0.7
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.4 CONTD: INDUSTRIAL BUIER SHIFTS - TRILLIONS OF BTU'S - FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.4 CONTD: INDUSTRIAL BOILER SHIFTS - TRILLIONS OF BTU'S - FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	C.S.
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	21.99	17.00	39.00	158.96	221.09	683.19	39.01	21.99	73.96	22.01	1301.21
DFIN	2.03	12.37	40.21	28.63	33.37	48.00	4.34	15.15	19.40	20.35	223.84
RFIN	9.21	9.03	12.39	32.46	20.45	187.63	1.20	15.10	8.36	3.98	306.03
LGIN	3.16	6.60	11.39	21.89	38.16	57.22	9.46	3.74	23.25	1.68	177.15
CLIN	20.00	45.00	132.98	241.99	313.00	976.00	50.00	56.00	125.00	88.00	2001.47
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLHC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.4 CONTD: INDUSTRIAL BOILER SHIFTS - TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	-39.99	-119.97	-229.96	-329.97	-620.02	-49.98	-59.98	-170.01	-49.99	-1689.87
DFIN	-17.91	-53.65	-207.99	-132.96	-192.72	-31.17	-6.68	-95.35	-48.60	-45.27	-852.21
RFIN	-76.61	-33.68	-54.78	-134.76	-107.01	-129.99	-1.45	-92.39	-18.31	-7.52	-650.50
LGIN	-31.16	-28.26	-57.76	-95.13	-206.75	-34.57	-13.82	-22.01	-54.37	-3.43	-547.26
CLIN	114.45	161.89	458.36	582.67	821.96	832.37	72.83	260.11	291.33	104.04	3700.00
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLFM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLHC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.4 CONTD: RESIDENTIAL AND COMMERCIAL NATURAL GAS HOOKUPS SHIFTS - TRILLIONS OF BTU'S - FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	C, S,
ELRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LCRS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 8.4 CONTD: RESIDENTIAL AND COMMERCIAL NATURAL GAS HOOKUPS SHIFTS - TRILLIONS OF BTU'S - FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.0	-21.42	-43.69	-71.90	-45.09	-12.36	-6.84	-5.22	-16.91	-6.74	-228.17
NGRS	0.0	45.32	97.05	168.60	97.87	74.97	22.49	14.43	38.35	25.39	586.47
DFRS	0.0	-3.72	-9.58	-22.90	-7.63	-50.38	0.0	-1.06	-6.05	-14.15	-113.47
LGRS	0.0	-0.14	-3.26	-8.14	-0.99	-7.58	-4.27	-3.35	0.0	0.0	-36.73
ELCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCM	0.0	0.0	8.75	10.47	42.13	30.39	0.27	11.02	3.47	9.27	110.28
DFCM	0.0	0.0	-9.51	-11.42	-14.32	-8.12	-0.30	-6.61	-3.78	-10.06	-70.63
RFCH	0.0	0.0	0.0	0.0	-35.75	-28.30	0.0	-6.10	0.0	0.0	-70.14
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLMC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.4 CONTD: RESIDENTIAL AND COMMERCIAL NATURAL GAS HOOKUPS SHIFTS - TRILLIONS OF BTU'S - FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRS	0.0	-43.86	-95.73	-164.66	-90.31	-34.96	-18.79	-11.43	-29.45	-13.17	-506.35
NGRS	0.0	141.38	228.55	417.35	239.16	197.48	55.93	38.45	65.02	47.37	1427.08
DFRS	0.0	-62.86	-37.83	-66.18	-34.87	-123.40	0.0	-5.80	-8.49	-25.07	-300.50
LGRS	0.0	-1.39	-8.57	-30.46	-31.07	-22.28	-19.49	-11.28	0.0	0.0	-124.54
ELCH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGCH	0.0	0.0	22.09	25.37	91.56	61.39	2.47	23.97	6.25	18.97	252.07
DFCH	0.0	0.0	-24.01	-27.58	-37.87	-16.76	-2.68	-14.83	-6.80	-20.10	-150.63
RGCH	0.0	0.0	0.0	0.0	-70.03	-56.75	0.0	-12.75	0.0	-0.59	-140.11
ELIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GSTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RFTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGTR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGFS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LGPM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DLRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ASCN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLNC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CLTC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE B.4 CONTD: INITIAL PRICES IN DOLLARS PER MILLION BTU'S FOR 1980

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRSP	12.98	13.98	11.10	8.78	10.03	9.63	10.17	8.18	10.75	5.00	9.96
NGRSP	3.43	2.96	2.42	1.97	1.96	1.62	1.70	1.44	2.26	2.53	2.10
DFRSP	3.20	3.09	3.12	3.15	2.90	2.99	2.37	3.02	3.13	3.10	3.05
LGRSP	3.53	3.24	3.19	3.11	2.85	2.91	3.47	2.97	3.11	3.06	3.06
ELCMP	12.77	14.80	10.46	9.04	9.91	8.81	9.36	7.16	9.52	5.11	9.40
NGCMP	2.88	2.46	2.09	1.60	1.72	1.40	2.01	1.57	1.90	2.00	1.64
DFCMP	2.92	2.65	2.65	2.85	2.74	2.76	2.40	2.86	2.88	2.85	2.82
RFCHP	2.31	2.31	2.42	2.16	2.46	2.22	1.82	2.87	2.60	2.54	2.35
ELIAP	10.04	7.86	7.89	6.48	6.69	6.43	7.06	4.78	7.71	2.63	6.76
NGIAP	2.44	1.90	1.57	1.28	1.75	1.16	1.45	1.12	1.51	1.43	1.39
DFIAP	2.91	2.83	2.88	2.88	2.74	2.74	2.58	2.88	2.88	2.85	2.82
RFIAP	2.33	2.36	2.38	2.16	2.44	2.25	2.00	2.62	2.60	2.60	2.32
ELIAP	3.17	2.99	2.96	2.88	2.70	2.73	2.79	2.79	2.89	2.84	2.81
CLIAP	1.42	1.27	1.09	1.21	1.14	1.40	0.81	0.93	1.23	1.07	1.13
GSTRP	4.86	5.01	4.81	4.79	4.88	4.66	4.80	4.80	4.94	4.88	4.84
DFTRP	3.89	3.81	3.86	3.85	3.71	3.72	3.55	3.85	3.85	3.82	3.78
JFTRP	3.39	3.27	3.35	3.35	3.21	3.17	3.03	3.17	3.20	3.19	3.22
RFTRP	2.33	2.36	2.38	2.16	2.44	2.25	2.00	2.62	2.60	2.60	2.35

TABLE B.4 CONTD: INITIAL PRICES IN DOLLARS PER MILLION BTU'S FOR 1985

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA10	U.S.
ELRSP	12.76	13.16	11.06	9.40	10.38	11.73	10.36	8.16	11.73	5.89	10.44
NGRSP	3.84	3.50	3.03	2.60	2.52	1.94	1.76	1.76	3.33	3.06	2.62
DFRSP	3.28	3.34	3.49	3.56	3.18	3.28	3.09	3.26	3.27	3.27	3.32
LGRSP	3.52	3.59	3.85	3.89	3.43	3.50	3.33	3.38	3.47	3.47	3.55
ELCMP	12.68	14.68	10.57	9.51	10.36	11.72	10.13	7.44	10.93	5.87	10.59
NGCMP	3.27	2.98	2.64	2.16	2.29	2.16	3.10	2.51	2.89	2.56	2.53
DFCMP	3.07	3.12	3.16	3.16	3.02	3.06	2.94	3.06	3.03	3.03	3.06
RFCHP	2.51	2.59	2.85	2.54	2.72	2.57	2.73	2.79	2.57	2.51	2.63
ELIAP	10.77	7.69	8.59	8.01	8.14	9.78	8.54	6.17	9.44	4.21	8.36
NGIAP	2.78	2.39	2.28	1.97	2.88	1.91	2.80	2.10	2.29	1.98	2.21
DFIAP	3.07	3.11	3.24	3.23	3.02	3.05	2.93	3.09	3.03	3.03	3.10
RFIAP	2.56	2.68	2.78	2.51	2.70	2.56	2.70	2.74	2.57	2.62	2.59
ELIAP	3.32	3.36	3.53	3.59	3.28	3.31	3.20	3.20	3.26	3.26	3.33
CLIAP	1.70	1.60	1.51	1.68	1.66	1.35	1.40	1.15	1.47	1.47	1.49
GSTRP	5.21	5.40	5.18	5.11	5.10	4.93	4.98	4.95	5.21	5.23	5.12
DFTRP	4.04	4.08	4.22	4.21	3.99	4.02	3.91	4.06	4.01	4.01	4.06
JFTRP	3.40	3.49	3.71	3.75	3.32	3.41	3.23	3.43	3.42	3.42	3.48
RFTRP	2.56	2.68	2.78	2.51	2.70	2.56	2.70	2.74	2.57	2.62	2.61

TABLE 8.4 CONT'D: INITIAL PRICES IN DOLLARS PER MILLION BTU'S FOR 1990

	FEA 1	FEA 2	FEA 3	FEA 4	FEA 5	FEA 6	FEA 7	FEA 8	FEA 9	FEA 10	U.S.
ELRSP	13.77	14.00	11.93	10.02	11.23	12.43	10.61	9.07	12.23	6.60	11.21
NGRSP	4.67	4.15	3.49	3.13	3.30	2.36	2.59	2.25	3.10	2.75	3.14
DFRSP	3.49	3.56	3.71	3.77	3.40	3.50	3.31	3.47	3.50	3.50	3.54
LGWSP	3.80	3.87	4.14	4.16	3.69	3.77	3.60	3.65	3.76	3.76	3.83
ELCNP	13.70	15.52	11.44	10.13	11.21	11.91	10.38	8.54	11.43	6.58	11.28
NGCNP	4.10	3.63	3.09	2.69	3.01	2.49	3.30	2.67	2.65	3.45	2.99
DFCNP	3.29	3.34	3.38	3.38	3.24	3.28	3.16	3.28	3.26	3.26	3.30
RFCNP	2.67	2.75	3.01	2.70	2.88	2.72	2.88	3.06	2.73	2.67	2.80
ELIAP	11.78	8.54	9.45	8.62	8.99	10.47	8.79	7.07	9.94	4.92	9.09
NGIAP	3.61	3.04	2.71	2.50	2.78	2.24	3.00	2.27	3.25	3.13	2.57
DFIAP	3.28	3.33	3.46	3.45	3.23	3.26	3.15	3.31	3.26	3.26	3.32
RFIAP	2.72	2.84	2.94	2.67	2.86	2.72	2.86	3.02	2.73	2.77	2.75
LGIANP	3.60	3.65	3.82	3.85	3.55	3.58	3.47	3.47	3.55	3.55	3.61
CLIANP	1.74	1.84	1.54	1.72	1.50	1.44	1.44	1.21	1.56	1.66	1.53
GSTNP	5.46	5.65	5.43	5.36	5.35	5.18	5.24	5.25	5.49	5.50	5.38
DFTHP	4.26	4.30	4.43	4.42	4.21	4.24	4.12	4.28	4.24	4.24	4.28
JFTHP	3.61	3.70	3.92	3.96	3.53	3.64	3.44	3.64	3.64	3.64	3.70
RFTHP	2.72	2.84	2.94	2.67	2.86	2.72	2.86	3.02	2.73	2.77	2.76

TABLE 8.5: RDPUR LOG INFORMATION(VERSION S & VERSION U)

VERSION S

THE FOLLOWING INFORMATION CHARACTERIZES THE RUN USED TO CALIBRATE THE DEMAND SHIFTS:

RDU IS F#500810 PRESPOH MAY25TRN MY3TRANS VERSIONS PBSE0810 RUN DATE = 11/17/77, TIME = 17: 48
PRICE MACRO PARAM QINIT MPGSTD
DFACE CONTROL IS CONDFACE, CONSERVATION FILE IS PHASE , CODE IS DATED 11/19/77, DATE = 11/22/77, TIME = 17: 33

THE FOLLOWING INFORMATION CHARACTERIZES THE RUN FROM WHICH THE SHIFTS ARE MADE:

RDU IS F#500810 PRESPOH MAY25TRN MY3TRANS VERSIONS PBSE0810 RUN DATE = 11/17/77, TIME = 17: 48
PRICE MACRO PARAM QINIT MPGSTD
DFACE CONTROL IS CONDFACE, CONSERVATION FILE IS PHASE , CODE IS DATED 11/19/77, DATE = 11/22/77, TIME = 17: 33

VERSION U

THE FOLLOWING INFORMATION CHARACTERIZES THE RUN USED TO CALIBRATE THE DEMAND SHIFTS:

RDU IS F#500810 PRESPOH MAY25TRN MY3TRANS VERSIONS A20CALIH RUN DATE = 11/17/77, TIME = 17: 45
PRICE MACRO PARAM QINIT MPGSTD
DFACE CONTROL IS CONDFACE, CONSERVATION FILE IS MA2ICML, CODE IS DATED 11/19/77, DATE = 11/23/77, TIME = 11: 29

THE FOLLOWING INFORMATION CHARACTERIZES THE RUN FROM WHICH THE SHIFTS ARE MADE:

RDU IS F#500810 PRESPOH MAY25TRN MY3TRANS VERSIONS HMC0811 RUN DATE = 11/17/77, TIME = 18: 21
PRICE MACRO PARAM QINIT MPGSTD
DFACE CONTROL IS INTDFACE, CONSERVATION FILE IS MA2ICML, CODE IS DATED 11/19/77, DATE = 11/23/77, TIME = 11: 29