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**COMPATIBILITY OF DOE ENERGY DATA BASES
WITH EEMIS DATA REQUIREMENTS**

J. D'ACIERNO AND A. HERMELEE

December 1979

**TECHNOLOGY ASSESSMENT GROUP
NATIONAL CENTER FOR ANALYSIS OF ENERGY SYSTEMS
DEPARTMENT OF ENERGY AND ENVIRONMENT**

**BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.**

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ABSTRACT

The object of this report is to present the data from EIA data bases which are compatible with the requirements of the data structure for the Energy Emergency Management Information System (EEMIS). An overview of data availability is briefly described and presented in the EEMIS petroleum and natural gas flow diagrams as well as in a more detailed review with each data element in the EEMIS data requirements. This information is presented with the intent that it be used as an overall system guide during the data transfer task as well as in future operation of EEMIS and in the interpretation of EEMIS data.

ACKNOWLEDGMENTS

Data specialists and operations people in the Energy Information Administration (EIA) and Economic Regulatory Administration (ERA) deserve special thanks for their cooperation and patience in explaining the data contained in the source systems which will be used in EEMIS. Special thanks go to Susan Harris, Robert Schmer, Leonard Fanelli, Stephen Patterson, Mary Ellen Condon, Anna Leimanis, Cris Bordeaux, Robert Peterson, Andy Drance, Charles Little, and Charlie McCrea from the Department of Energy (DOE) for their time and efforts in describing the data systems.

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I. INTRODUCTION

This report presents an assessment of the Energy Information Administration's (EIA) energy data base compatibility with Energy Emergency Management Information System (EEMIS) petroleum and natural gas data requirements based upon studies* conducted by Data Resources, Inc. (DRI) and KETRON, Inc. as well as the authors' contacts made with industry and EIA staff in the course of developing the EEMIS structure. The availability of data for EEMIS is described in Section II in terms of (1) data available from EIA data bases, (2) data available from other sources, and (3) data available from sources to be determined. Category (1) includes only those EIA data bases currently being mapped into EEMIS as shown in Table 1. Where two or more data bases provide similar information, a single source has been selected based upon accessibility, timeliness, and accuracy of the data. Category (1) information should be used as an overall system guide during the data transfer task as well as in the future operation of EEMIS and in the interpretation of EEMIS data. EIA data bases not currently incorporated in EEMIS, data maintained on hard copy only, and data available from other sources are accounted for in category (2).

An overview of data availability from each EIA data base is presented in the petroleum and natural gas system flow diagrams included in the Appendix. Separate diagrams are presented for weekly, monthly, and annual data collected at the facility, state, regional, and national levels of aggregation. In addition a more detailed review of EIA data base compatibility with EEMIS data requirements is presented for each element in the petroleum, natural gas, demand, import/export, and transportation network structures at the facility, state, regional, and national levels of aggregation. Numbers appearing in the left hand column of the sector structure listing correspond to the table of EIA data systems shown in the Appendix. In some instances, data are reported in a form that does not meet structure specifications, but may prove useful to EEMIS. Brackets [--] are used to indicate such discrepancies between EEMIS data requirements and the data contained in the source system.

*The following studies were used:

A Data Base Evaluation for the Energy Emergency Management Information System; Eighteen Data Systems of the Energy Information Administration, DRI, April 1979.

Evaluation of Energy Data Bases for Application to the Energy Emergency Management Information System, KETRON, April, 1979.

Energy Emergency Management Information System Data Source Evaluations Task Order III Report, KETRON, July 16, 1979.

Table 1
EIA Systems Mapped into the EEMIS Data Structure

EEMIS Facility	Level of Aggregation			
	Facility	State	Regional	National
Petroleum Sector				
Domestic Crude Oil Production Facility	Annual Survey of Oil & Gas Reserves*	Crude Oil First Purchaser		API
Crude Oil Bulk Terminal		JPRS		
Strategic Petroleum Reserve	Oil Imports			
Oil Refinery	JPRS, Oil Imports, SWEARS, Capacity of Pet. Ref.	JPRS	API	Cost & Pricing, Crude Oil Entitlements, API
Oil Product Bulk Terminal		JPRS	SWEARS	
Natural Gas Sector				
Natural Gas Production	Annual Survey of Oil and Gas Reserves*	Supply and Disposition of Natural Gas		
Gas Processing Plant	NGL Operations Report	NGL Processing Plant Operations		
LNG Terminal	PITS			
Underground Storage				Underground Gas Storage
Supplemental Fuel Storage Facility				
Transmission and Distribution Facility	Curtailments, Winter Energy Emergency System			
Demand Facility	Subpart L, Curtailments, Winter Energy Emergency System			
Large End-Use Consumers	Oil Imports,* Cost & Quality of Fuels,* Curtailments*			
Import/Export Sector				
Foreign Country				Oil Imports, PITS, SWEARS, Transfer Pricing
Transportation Network				
Transportation Links	Oil Imports, JPRS	Tanker & Barge Move	JPRS, SWEARS	JPRS
Transportation Junction Facility	Oil Imports, PITS, Transfer Pricing			

*These systems should be given lowest priority during the coding task.

II. DATA AVAILABILITY

Petroleum Sector*

Domestic Crude Oil Production Facility

EIA Data Availability. Facility level data are available from the Annual Survey of Domestic Oil and Gas Reserves, which is an annual system with data for about 3,100 oil companies for a total of 62 geographic crude oil production regions. The system first became active in December 1978 and the earliest year for which data are available is 1977.

The Crude Oil First Purchaser System provides output data for the state level facility. Output quantity and price by category (i.e., old, new, stripper) of oil shipments to first purchasing companies are available, but crude oil types, facility destinations, and routes are not provided. Total domestic production of crude oil for the national level is on the American Petroleum Institute System (API) which contains weekly API projections based on surveys. Crude types are not specified; the data are by group only. Stocks of crude oil by group are also on this system but the quantity is grouped with refinery stocks.

Other Sources. Various state energy and conservation offices report total production figures to the University of Oklahoma Petroleum Data System. A study** showed that state production figures were consistently higher than first purchaser report data by an average of only 1% (never more than 4%) during 1976 and 1977. Monthly state level production data are available from the taxation departments for the major oil producing states: the Texas Railroad Commission (Severance Tax Reports), the Louisiana Revenue Department, the Oklahoma Tax Commission, and the California Department of Conservation.

The API published estimated productive capacity by state for the U.S. in 1974.+ The most up-to-date values of such estimates of capacity should be incorporated into the EEMIS data base.

Sources to be Determined. Short-term production and output projections, wellhead and output prices, storage capacity, route, and transportation link data.

*All petroleum data are available on a monthly basis and the systems are mandatory unless specified otherwise.

**A Comparison of Lower-48 Production Data From Three Crude Oil Data Systems, DOE/EIA-0102/18, Sept. 1978.

+Reserves of Crude Oil, Natural Gas Liquids, and Natural Gas in the United States and Canada - 1974, API, Vol. 29, May 1975.

Crude Oil Bulk Terminal

EIA Data Availability. The Joint Petroleum Reporting System (JPRS) contains refinery and pipeline and tank farm crude oil storage data for companies at the state level. Since no other crude oil bulk terminal storage data exist in EIA, the pipeline and tank farm data can be mapped into the crude oil storage terminal facility at the state level to capture this important information. The groups (foreign and domestic) of crude oil in storage are specified on the system, but crude-type data are not available.

Sources to be Determined. At the state level there are no input and output data or storage capacity data. In addition, EIA systems are also needed for facility, regional, and national level crude oil bulk terminal facility data.

Strategic Petroleum Reserve (SPR)

EIA Data Availability. For the facility level (i.e., each SPR site) the input quantity by foreign country source is available on the Oil Imports System. Crude-type data are complete, but must be derived from country of origin, sulfur content, and specific gravity data. Input routes are also specified on Oil Imports; each route is made of two links, one between a country and a U.S. port city, and the other between the port city and the SPR facility.

Sources to be Determined. Storage quantity, drawdown rate and capacity, outputs, routes, price details, transportation links, and projections.

Oil Refinery

EIA Data Availability. There are four EIA systems with facility level refinery data. JPRS contains the most comprehensive facility level data, but major shortcomings of the system are that source and destination are not available for oil product input and output, crude oil types are not specified, and transportation details are missing. The detailed crude oil-type data for refinery inputs are extracted from the Oil Imports System. Capacity data are available on the Capacity of Oil Refineries System. Secretary's Weekly Energy Activity Report System (SWEARS) is weekly system with facility level refinery data.

JPRS contains inputs of crude oil by source state or country but not by crude type. In addition the mode of transport (but not route) for inputs of domestic and foreign crude groups, storage quantity, and outputs (by category only) are available for crude oil. Data for oil products on the system are input, output (without source or destination), and storage quantities. The only

destination specified for outputs is petrochemical plants at the national level. The Oil Imports System contains data on the specific types of foreign crude oil which are received by refinery facilities. These data will supplement JPRS input data to capture crude-type information so that refineries can be characterized by the types of foreign crude oil that are processed. Capacity of Petroleum Refineries is an annual voluntary system containing capacity details for processing operations and storage at each refinery. JPRS also contains capacity data for crude oil distillation units.

SWEARS contains weekly facility level refinery data, but does not provide as much detail as JPRS. SWEARS contains inputs of foreign crude oil and outputs and stocks of selected oil products. Storage of crude oil by groups is also available on JPRS at the state level. Oil product storage data are not available at the state level.

Two EIA data systems contain national level refinery data. Crude Oil Entitlements contains input quantity and price data for crude oil. Since the data are reported for refinery companies, they are used to describe the national level refinery facility. Source data are not specified on the system although they are implied to be either domestic or foreign by crude oil group. The Cost and Pricing System is an EIA source for oil product input price data which applies to only imports to refineries. Input quantity, source country, and price are on the system and output quantities and prices are also available at the national level.

Other Sources. The API System is a weekly system containing regional and national level refinery data which are API projections based on surveys of the petroleum industry. API data are distillation capacity, total inputs (i.e., by sector), and outputs by product types, but source and destination data do not exist. Since storage for crude oil (by group) is reported as one quantity refinery and producer's lease stocks are combined. Oil product storage data are available by product type, except for distillate and residual fuel oil, which are available by group. Product storage is combined with pipeline and product terminal storage.

Sources to be Determined. Inputs of oil products from domestic sources, comprehensive destination data, routes, and transportation links are sources to be determined.

Oil Product Bulk Terminal

EIA Data Availability. Facility level data are not available from EIA. JPRS contains storage quantity data at the state level for oil product types in the gasoline and jet fuel groups, but data for distillate and residual fuel oil are by group only. SWEARS contains weekly storage quantity data at the regional level for these products.

Sources to be Determined. EIA systems are needed for all the facility level data requirements. In addition, input and output data are needed for the state, regional, and national levels.

Natural Gas Sector

Natural Gas Production

EIA Data Base Availability. Annual data on the production of natural gas are reported by company and substate region in the Annual Survey of Oil and Gas Reserves. Annual data are available by state in the Supply and Disposition of Natural Gas Data System. This system accounts for only 80 to 85% of total production.

Other Sources. Data on production and average wellhead price are collected on a monthly basis directly from the states and used by EIA for reporting purposes. These data are considered very reliable and complete since they are used by states for taxation purposes. The monthly data are not stored on an EIA data base, although annual figures are available on the Federal Energy Data System (FEDS). Daily production capacity by state is available from the American Gas Association's (AGA) Committee on Natural Gas Reserves.

Sources to be Determined. Destination data and short-term projections are sources to be determined.

Gas Processing Plant

EIA Data Base Availability. Monthly data on inputs, production, stocks, outputs, and prices of natural gas and natural gas liquids are reported at the plant level in the Natural Gas Processing Plant Operations Data System.*

Other Sources. Plant capacity is reported in the Oil and Gas Journal's annual survey of gas processing plants.

Sources to be Determined. Short-term projections, transportation links, and facility level destination data are sources to be determined.

Liquefied Natural Gas (LNG) Terminal

EIA Data Base Availability. Weekly data on imports of LNG are reported on the Petroleum Import Tracking System (PITS) by foreign country and port city.

Other Sources. LNG import quantities and prices reported monthly and collected annually on form FPC 14 are maintained on hard copy. The data are reported by foreign seller and U.S. entry point by responding company. The

*Data reported on form BOM-6-1305-M, the Natural Gas Liquids Processing Plant Operations Data System, and data reported on form BOM-6-1343-A were combined onto one form, EIA-64, as of January 1979.

Respondent Information System was intended to maintain data from form FPC 14 on-line, but the system is not currently operational. LNG storage and sendout capacity is reported in the Oil and Gas Journal's annual survey of worldwide LNG base-load and peak-shaving plants.

Sources to be Determined. Short-term projections, LNG in storage, and natural gas output from LNG terminals are sources to be determined.

Underground Storage

EIA Data Base Availability. Injections, withdrawals, and working gas in storage are reported in the Underground Gas Storage System biweekly during the heating season and monthly at other times. Information is received from 83 respondents operating almost 400 reservoirs. If an operator maintains storage in more than one state only one report is required; therefore, information in this system is useful to EEMIS only at the national level.

Other Sources. Injections, withdrawals, working gas in storage, and maximum drawdown rate are available by state from the AGA's Committee on Underground Storage.

Sources to be Determined. All facility level data at the state, regional, and national levels are sources to be determined. Quantities by source/destination, quantities by owning company, and transportation links must also be determined.

Supplemental Fuel Storage Facility

EIA Data Base Availability. None.

Other Sources. The Synthetic Natural Gas (SNG) Plant Report (EIA-19) is a monthly report filed by 13 respondents on feedstock inputs to SNG plants, storage, SNG production, and outputs. Data are maintained on hard copy and are not available on any EIA data bases. LNG storage and sendout capacity is reported in the Oil and Gas Journal's annual survey of worldwide LNG base-load and peak-shaving plants.

Sources to be Determined. All data pertaining to propane peaking facilities; LNG peaking facility input and output data; and SNG price, capacity, and transportation link data are sources to be determined.

Transmission and Distribution (T&D) Facility

EIA Data Base Availability. Current and projected monthly data are reported annually by each T&D facility for natural gas receipts, deliveries, alternate fuels, and curtailments by end-use customer and type of service (firm

or interruptible) in the Natural Gas Curtailment Data System. The Winter Energy Emergency System collects actual monthly data and two-month projections (during the heating season only) from a subset of respondents to the curtailment system for natural gas receipts, deliveries, and curtailments by end-use customer and type of service.

Other Sources. None.

Sources to be Determined. Quantity in underground storage, delivered price of gas for resale, fuel switching capability of end-use customers, and transportation links.

Demand Sector

Demand Facility

EIA Data Availability for Petroleum. Subpart L System (called Prime Suppliers Monthly Report) collects sales data for each prime supplier company which makes the first sale of an allocated product into the state distribution system for consumption within the state. The system is designed to provide monthly summary data regarding actual product supply in the state as well as detailed data on estimated product availability for one month in the future. These data can be incorporated into the demand facility with the assumption that total supply as defined by the system will be equal to total demand for each state. This data source is the best candidate for representing demand data since there is no other monthly EIA system which gathers comprehensive state demand data comparable to Subpart L System.

The Electric Utility Sector is the only demand sector for which data are specified in Subpart L System. The supplies of two products, No. 4 fuel oil and No. 5 plus No. 6 fuel oil, are specified for this sector in each state. Although no other sectors are specified in the system transportation sector data can be derived with the assumption that gasolines and jet fuels are consumed only by this sector. Data for kerosine, heating oil, diesel fuel oil, other residual fuel oil (bunker C, Navy Special Fuel Oil, and other residual fuel oils specified on the system), crude oil, No. 4 fuel oil, and No. 5 plus No. 6 fuel oil will not be mapped into a particular demand sector; all sectors combined is an appropriate sector. Thus, 150 demand facilities are required to map Subpart L System into the EEMIS data base in order to represent the three sectors, electric utility, transportation, and all sectors combined, for each of the 50 states.

EIA Data Base Availability for Natural Gas. Current and projected monthly data are reported annually by state for natural gas deliveries and curtailments in the Natural Gas Curtailment Data System. The Winter Energy Emergency System collects actual monthly data and two-month projections by state (during the heating season only) from a subset of respondents to the Curtailment System for natural gas deliveries and curtailments to end-use customers.

Other Sources for Petroleum. Input of heating fuel oil to the residential sector is available on the Middle Distillate Price Monitoring System. Quantity and price data are given by supplier company and by type of supplier (retailer, reseller, retailer/reseller, and refiner), but respondents are not the entire universe of companies. Sales of Liquefied Petroleum Gases (LPG) is a report of light products sold to residential/commercial, industrial, transportation systems, and other sectors. Data for all the light product types are provided on this annual (no monthly breakdown) and voluntary system. These two systems are not mapped into the EEMIS data structure because one is a survey and the other is a voluntary system. However, these data sources could be used to supplement demand facility data from Subpart L System. The Middle Distillate Price Monitoring System would provide information to differentiate between residential and nonresidential demand for heating oil. Such information is essential for managing winter energy emergencies when the demand for heating fuel is highest. The sales of the LPG System would specify the relative demand for propane and other liquefied gases by the various market segments for these products in each state: the residential/commercial sector, gas distribution companies, petrochemical plants, and agricultural users.

Other Sources for Natural Gas. None.

Sources to be Determined for Petroleum. Detailed data for input to the state demand facilities: source, alternate fuel usage and capability, price, routes, transportation links, and projections are sources to be determined.

Sources to be Determined for Natural Gas. Data are not available at the demand facility level on transportation links, alternate fuel usage, and natural gas deliveries and curtailments by type of service.

Large End-Use Consumers

EIA Data Availability for Petroleum. Demand data are available on two EIA systems which cover different end users at the facility level: Oil Imports and Cost and Quality of Fuels for Electric Power Plants. Electric power plant inputs by oil group are reported on the Cost and Quality of Fuels for Electric Plants, DRI system 18. Natural gas and coal are also included on this system which collects source data not available on the data base. Foreign crude oil inputs to petrochemical plants are available by crude oil type and by source on the Oil Imports System, KETRON System 16.

EIA Data Base Availability for Natural Gas. Monthly data are reported annually by T&D facilities in Schedule 1 of the Natural Gas Curtailment Data System for each large end-use consumer served. Large end-use consumers are defined to be those customers whose combined deliveries and curtailments exceed 100 MMcf in a year. Data are reported on demand sector, FERC priority, SIC code, alternate fuel usage, and natural gas deliveries, and curtailments by type of service. Twelve-month projections for these data elements are also reported.

Other Sources for Petroleum. The Monthly Fuel Consumption Report gathers facility level data on inputs and prices of fuels consumed by approximately 600 manufacturers and 300 steel and rolling mills. Four-digit SIC codes are specified for each plant. This system is not incorporated into EEMIS because (1) the fraction of the total universe which is covered by the system is unknown, and (2) although it is a mandatory system there is poor control over response, i.e., a lack of follow-up with nonrespondents. However, the number of respondents is expected to increase by 200 as a result of an aggressive follow-up campaign with nonrespondents. The utilization of this system for EEMIS can be reconsidered after a measure of the target universe is determined. Another potential system which could be used for the large end-use consumer facility but has not yet been evaluated is Major Fuel Burning Installations. This system collects data from all industrial fuel burning installations with at least 100 million Btu/hour firing rate.

Other Sources for Natural Gas. Delivered price is available from price schedules filed with state public service commissions.

Sources to be Determined for Petroleum. Detailed input data: sources, demand categories, alternate fuel usage and capacity, prices, routes, and transportation links are sources to be determined.

Sources to be Determined for Natural gas. Capability for fuel switching and natural gas consumption by demand category (space heating and miscellaneous thermal, process steam, direct heat, petrochemical feedstock) are sources to be determined.

Import/Export Sector

Foreign Country

EIA Data Base Availability. Four EIA systems contain data which pertain to the national level foreign country facility. Outputs of oil products shipped from foreign countries to U.S. port city destinations are specified in the Oil Imports System (Schedules K and T of form ERA-60) and outputs of crude oil are specified in the Transfer Pricing System. Petroleum Imports Tracking System (PITS) is a weekly version of the Oil Imports System although PITS contains much less detail. For example, information is provided for categories (crude oil and petroleum products) and for the light products group. The distinction between the natural gas sector and the LNG product type can be derived by the mode of transportation; natural gas is only shipped by pipeline whereas LNG is always shipped in a suitable storage vessel. Weekly data on the outputs of crude oil from foreign countries to destinations (PAD Districts) are provided by SWEARS. In addition, outputs of oil products from groups of foreign countries are also specified. These data are collected on form EIA-165.

Sources to be Determined. Facility level data. Also routes, transportation links, projections, and quantity in transit for all levels.

Transportation Network

Transportation Links

EIA Data Available for Petroleum. Four EIA systems contain information pertinent to the four levels of aggregation in the transportation network.

The Oil Imports System and JPRS data pertain to the facility level transportation links. Oil Imports data describe all the aggregated links which carry foreign crude oil between foreign countries and U.S. customs port in addition to the links between the ports and oil refineries, Strategic Petroleum Reserve (SPR) sites, or processing plants. The links are not classified as detailed links because the data elements, company ID, mode of transportation, length, lag time, quantity, and cost are not defined by the system. Respondents to the JPRS Refineries Report (EIA-87) specify the last significant modes of transportation used to carry domestic and foreign crude oil to refineries and the quantities carried by each mode. This information is also captured by aggregate facility level transportation links.

Tanker and Barge Movements in PAD III contains the quantity of crude oil (by category) and oil products shipped from a state in PAD III to a state in another PAD District. This system, which is currently voluntary, does not cover transactions within any one state or PAD District or between districts other than district III.

JPRS Pipeline Products Report data (form EIA-89) describe the quantity of oil products moved between the PAD Districts. This information is useful for describing regional aggregate transportation links. Total quantities on this form are applicable to national level transportation links. The SWEARS report form, Pipeline Stocks of Finished Products (EIA-163), can also be used to describe regional aggregate transportation links. Both systems are applicable only to the pipeline mode.

EIA Data Base Availability for Natural Gas. None.

Other Sources for Petroleum. The Domestic Trade Data Base sponsored by the Department of Commerce Maritime Administration (MARAD) provides data on domestic water shipments of crude oil and oil products between U.S. ports. These data are pertinent to facility level transportation links. Monthly data are obtained by MARAD from the U.S. Army Corps of Engineers. Since this is not a DOE system it is not applicable to EEMIS.

Other Sources for Natural Gas. DOE has authorized the National Petroleum Council to prepare a detailed study of, among other forms of energy transportation, natural gas transmission lines. Maximum design flow capacity and daily average flowing volumes between adjacent states are being surveyed from major interstate gas pipeline companies. The Federal Energy Regulatory Commission publishes a map of major natural gas pipelines identified by company name and pipeline diameter. LNG receiving points are also identified.

Sources to be Determined for Petroleum. None of the four EIA systems contains the level of detail required to represent the transportation network in such a way that crude oil and oil product allocations can be planned and implemented. Nor with these data systems will it be possible to accurately assess the impact of a loss in one or more modes of transportation in any but the most general terms. Therefore, sources are needed for essentially all the data requirements in the transportation network.

Sources to be Determined for Natural Gas. Facility level transportation network data are not available.

Transportation Junction Facility

EIA Data Availability for Petroleum. U.S. Customs Department port city codes are used to signify destinations in three EIA Systems: The Oil Imports System, PITS, and The Transfer Pricing System. These port cities will be incorporated as nodes in the transportation network, i.e., as transportation junction facilities.

APPENDIX

EIA DATA SYSTEMS INCLUDED IN EEMIS MAPPING

1. Joint Petroleum Reporting System (JPRS)
 2. Oil Imports System
 3. American Petroleum Institute System (API)
 4. Crude Oil First Purchaser System
 5. Capacity of Petroleum Refineries
 6. Secretary's Weekly Energy Activities Reporting System (SWEARS)
 7. Petroleum Imports Tracking System (PITS)
 8. Tanker and Barge Movements in PAD III
 9. Underground Gas Storage System
 10. Supply and Disposition of Natural Gas
 11. Natural Gas Curtailment System
 12. Natural Gas Liquids Processing Plant Operations
 13. Winter Energy Emergency System
 14. Subpart L System
 15. Cost and Quality of Fuels for Electric Power Plants
 16. Transfer Pricing System
 17. Cost and Pricing System
 18. Crude Oil Entitlements
 19. Annual Survey of Oil and Gas Reserves
-

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PETROLEUM SYSTEM FLOW DIAGRAMS

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FACILITY LEVEL (Weekly Data)

FACILITY LEVEL (Weekly Data)

EEMIS - PETROLEUM SYSTEM

FACILITY LEVEL (Monthly Data)

*Note: Crude oil transportation network data are obtained from systems 1, 2, 7, and 16

A = Annual Data

C = Capacity Data

EEMIS - PETROLEUM SYSTEM

STATE LEVEL (Monthly Data)

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*Note: Transportation network data are obtained from System 8.

EEMIS - PETROLEUM SYSTEM

REGIONAL LEVEL (PAD District, Weekly Data)

*Note: Transportation network data are obtained from System 1 and System 6. System 1 contains monthly data.

EEMIS - PETROLEUM SYSTEM

NATIONAL LEVEL (Weekly Data)

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EEMIS - PETROLEUM SYSTEM

NATIONAL LEVEL (Monthly Data)

Prepared by:
NATIONAL CENTER for ANALYSIS of ENERGY SYSTEMS

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*Note: Transportation network data are obtained from System 1.

C = Capacity data

W = Weekly data

NATURAL GAS SYSTEM FLOW DIAGRAMS

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EEMIS - NATURAL GAS SYSTEM

FACILITY LEVEL (Weekly Data)

EEMIS - NATURAL GAS SYSTEM

FACILITY LEVEL (Monthly Data)

EEMIS - NATURAL GAS SYSTEM

FACILITY LEVEL (Annual Data)

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EEMIS - NATURAL GAS SYSTEM

STATE LEVEL (Annual Data)

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EEMIS - NATURAL GAS SYSTEM

NATIONAL LEVEL (Monthly Data)

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EEMIS SECTOR STRUCTURES

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EEMIS PETROLEUM SECTOR STRUCTURE
Facility Level

I. Domestic Crude Oil Production Facility

A. Characteristics

19	1. Domestic crude region ID	}	defines unique facility
19	2. Company ID		

B. Production

- 19
1. Quantity (M) by crude type
 2. Wellhead price (M) by crude type
 3. Daily production capacity by crude type
 4. Short-term production projections (M) by crude type

C. Storage

1. Quantity (MS) by crude type
2. Capacity

D. Output

1. Quantity (M) by crude type
2. Quantity (M) by crude type by destination (e.g., refinery, bulk terminal)
3. Quantity (M) by crude type by destination by route
4. Price (M) (charged by production facility--exclusive of transportation costs) by crude type by destination
5. Transportation links available
6. Short-term projections (M) by crude type by destination

Note: (M) stands for monthly totals, historical data for 5 years, and projected data for 1 year.

(MS) stands for end-of-month snapshots, 5-year historical data.

Data which may be useful to EEMIS but are not reported in a form meeting structure specifications are indicated in brackets [--].

All data are monthly unless indicated otherwise.

II. Crude Oil Bulk Terminal

A. Characteristics

1. Location--defines unique facility [port city might not define unique facility]
2. Controlling company ID

B. Input

1. Quantity (M) by crude type
2. Quantity (M) by crude type by source (e.g., domestic crude oil production facility, or foreign country)
3. Quantity (M) by crude type by source by route
4. Delivered price (M) by crude type by source
5. Transportation links available
6. Short-term receipt projections (M) by crude type by source

C. Storage

1. Quantity (MS) by crude type
2. Capacity

D. Output

1. Quantity (M) by crude type
2. Quantity (M) by crude type by destination (e.g., refinery)
3. Quantity (M) by crude type by destination by route
4. Price (M) (charged by terminal) by crude type by destination
5. Transportation links available
6. Short-term shipment projections (M) by crude type by destination

III. Strategic Petroleum Reserve (SPR)

A. Characteristics

- 2 1. Location--defines unique facility
- 2. Company ID

B. Input

- 1. Quantity (M) by crude type
- 2 2. Quantity (M) by crude type by source (e.g., foreign country)
- 2 3. Quantity (M) by crude type by source by route
- 4. Delivered price (M) by crude type by source
- 5. Transportation links available
- 6. Short-term receipt projections (M) by crude type by source

C. Storage

- 1. Quantity (MS) by SPR type
- 2. Maximum drawdown rate by SPR type
- 3. Capacity by SPR type

D. Output

- 1. Quantity by SPR type
- 2. Quantity (M) by SPR type by destination (e.g., refinery)
- 3. Quantity (M) by SPR type by destination by route
- 4. Price (M) (charged by SPR Office) by SPR type by destination
- 5. Transportation links available
- 6. Short-term shipment projections (M) by SPR type by destination

IV. Oil Refinery

A. Characteristics

- 1,2,5,6* 1. Location--defines unique facility
- 1,2,5,6* 2. Controlling company ID
- 1 3. Distillation capacity
- 5* 4. Other processing capacities (e.g., reforming, catalytic cracking)
- 5. Minimum and maximum values for each crude attribute (e.g., sulfur content, specific gravity)
- 6. Minimum production for each product type
- 7. Maximum production possible for each product type and total remaining capacity for other product types

B. Input

- 1,2,6* 1. Quantity (M) by type for all petroleum groups [1-Oil products and the domestic crude oil group, 2-foreign crude oil, 6*-foreign crude oil group]
- 1 2. Quantity (M) by type by source (e.g., domestic facility, bulk terminal, foreign country) [crude oil only]
- 1,2 3. Quantity (M) by type by source by route [1-crude oil groups by mode of transportation-not by route, 2-foreign crude oil only]
- 4. Delivered price (M) by type by source
- 5. Transportation links available
- 6. Short-term receipt projections (M) by type by source

C. Storage

- 1,6* 1. Quantity by type (MS) [1-crude oil data are not by type, 6*-selected products]
- 5* 2. Capacity by group

*Note: System 6 is a weekly system and system 5 is an annual voluntary system.

D. Output

1. 1. Quantity (M) by type
2. Quantity (M) by type by destination (e.g., demand facility, foreign country)
3. Quantity (M) by type by destination by route
4. Price (M) (charged by refinery) by type by destination
5. Transportation links available
6. Short-term shipment projections (M) by type by destination

V. Oil Product Bulk Terminal

A. Characteristics

1. Location--defines unique facility
2. Controlling company ID

B. Input

1. Quantity (M) by product type
2. Quantity (M) by product type by source (e.g., refinery, bulk terminal, foreign country)
3. Quantity (M) by product type by source by route
4. Delivered price (M) by product type by source
5. Transportation links available
6. Short-term receipt projections (M) by product type by source

C. Storage

1. Quantity (MS) by product type
2. Capacity by group

D. Output

1. Quantity (M) by product type
2. Quantity (M) by product type by destination (e.g., demand facility, foreign country)
3. Quantity (M) by product type by destination by route
4. Price (M) (charged by terminal) by product type by destination
5. Transportation links available
6. Short-term shipment projections (M) by product type by destination

EEMIS PETROLEUM SECTOR STRUCTURE
State Level

I. Domestic Crude Oil Production Facility

A. Characteristics

- 4 1. State or Region ID or national--defines unique facility
- 2. Listing of major company ID's

B. Production

- 1. Quantity (M) by crude type
- 2. Average wellhead price (M) by crude type
- 3. Daily production capacity by crude type
- 4. Short-term production projections (M) by crude type

C. Storage

- 1. Quantity (MS) by crude type
- 2. Capacity

D. Output

- 4 1. Quantity (M) by crude type [not by crude type]
- 2. Quantity (M) by crude type by destination (e.g.,
 State/Regional/National bulk terminal or refinery)
- 3. Quantity (M) by crude type by destination by route
- 4 4. Average price (M) by crude type by destination [not by crude type
 and destination]
- 5. Transportation links available
- 6. Short-term projections (M) for 1 and 2

IV. Oil Refinery

A. Characteristics

- 1 1. State or Region ID or national--defines unique facility
2. Distillation capacity (for entire state or region)
3. Other processing capacities (for entire state or region)

B. Input

1. Quantity (M) by type
2. Quantity (M) by type by source (e.g., State/Regional/National crude oil production, foreign country)
3. Quantity (M) by type by source by route
4. Average price (M) by type by source
5. Transportation links available
6. Short-term projections (M) for 1 and 2

C. Storage

- 1 1. Quantity (MS) by type [by crude group no product data]
2. Capacity by group

D. Output

1. Quantity (M) by type
2. Quantity (M) by type by destination (State/Regional/National demand facility or foreign country)
3. Quantity (M) by type by destination by route
4. Average price (M) by type by destination
5. Transportation links available
6. Short-term projections (M) for 1 and 2

V. Oil Product Bulk Terminal

A. Characteristics

- 1 1. State or Region ID or national--defines unique facility

B. Input

1. Quantity (M) by type
2. Quantity (M) by type by source (e.g., State/Regional/National refinery, foreign country)
3. Quantity (M) by type by source by route
4. Average price (M) by type by source
5. Transportation links available
6. Short-term projections (M) for 1 and 2

C. Storage

- 1 1. Quantity (MS) by type
2. Capacity by group

D. Output

1. Quantity (M) by type
2. Quantity (M) by type by destination (e.g., State/Regional/National demand facility)
3. Quantity by type by destination by route
4. Average price (M) by type by destination
5. Transportation links available
6. Short-term projections (M) for 1 and 2

EEMIS PETROLEUM SECTOR STRUCTURE
Regional Level

IV. Oil Refinery

A. Characteristics

- 3 1. State or Region ID or national--defines unique facility
- 3 2. Distillation capacity (for entire state or region)
- 3 3. Other processing capacities (for entire state or region)

B. Input

- 3 1. Quantity (M) by type [total input, i.e., by sector]
- 2. Quantity (M) by type by source (e.g., State/Regional/National crude oil production, foreign country)
- 3. Quantity (M) by type by source by route
- 4. Average price (M) by type by source
- 5. Transportation links available
- 6. Short-term projections (M) for 1 and 2

C. Storage

- 1. Quantity (MS) by type
- 2. Capacity by group

D. Output

- 3 1. Quantity (M) by type [selected product groups and types]
- 2. Quantity (M) by type by destination (State/Regional/National demand facility or foreign country) [destination is state only]
- 3. Quantity (M) by type by destination by route
- 4. Average price (M) by type by destination [not by destination]
- 5. Transportation links available
- 6. Short-term projections (M) for 1 and 2

V. Oil Product Bulk Terminal

A. Characteristics

- 6* 1. State or Region ID or national--defines unique facility

B. Input

1. Quantity (M) by type
2. Quantity (M) by type by source (e.g., State/Regional/National refinery, foreign country)
3. Quantity (M) by type by source by route
4. Average price (M) by type by source
5. Transportation links available
6. Short-term projections (M) for 1 and 2

C. Storage

- 6* 1. Quantity (MS) by type[selected product groups and types]
2. Capacity by group

D. Output

1. Quantity (M) by type
2. Quantity (M) by type by destination (e.g., State/Regional/National demand facility)
3. Quantity by type by destination by route
4. Average price (M) by type by destination
5. Transportation links available
6. Short-term projections (M) for 1 and 2

*Weekly data

EEMIS PETROLEUM SECTOR STRUCTURE
National Level

I. Domestic Crude Oil Production Facility

A. Characteristics

- 3 1. State or Region ID or national--defines unique facility
- 2. Listing of major company ID's

B. Production

- 3 1. Quantity (M) by crude type[total quantity, i.e., by category]
- 2. Average wellhead price (M) by crude type
- 3. Daily production capacity by crude type
- 4. Short-term production projections (M) by crude type

C. Storage

- 1. Quantity (MS) by crude type
- 2. Capacity

D. Output

- 1. Quantity (M) by crude type
- 2. Quantity (M) by crude type by destination (e.g., State/Regional/
 National bulk terminal or refinery)
- 3. Quantity (M) by crude type by destination by route
- 4. Average price (M) by crude type by destination
- 5. Transportation links available
- 6. Short-term projections (M) for 1 and 2

IV. Oil Refinery

A. Characteristics

- 3*,17,18 1. State or Region ID or national--defines unique facility
- 3* 2. Distillation capacity (for entire state or region)
- 3. Other processing capacities (for entire state or region)

B. Input

- 3*,17,18 1. Quantity (M) by type [3-total quantity, i.e., by sector; 17-foreign oil products; 18-crude oil by group]
- 2. Quantity (M) by type by source (e.g., State/Regional/National crude oil production, foreign country)
- 3. Quantity (M) by type by source by route
- 17 4. Average price (M) by type by source [foreign crude oil only]
- 5. Transportation links available
- 6. Short-term projections (M) for 1 and 2

C. Storage

- 1. Quantity (MS) by type
- 2. Capacity by group

D. Output

- 17 1. Quantity (M) by type
- 2. Quantity (M) by type by destination (State/Regional/National demand facility or foreign country)
- 3. Quantity (M) by type by destination by route
- 17 4. Average price (M) by type by destination [not by destination]
- 5. Transportation links available
- 6. Short-term projections (M) for 1 and 2

*Note: System 3 is a weekly system

EEMIS NATURAL GAS SECTOR STRUCTURE
Facility Level

I. Natural Gas Production*

A. Characteristics

19	1. Natural gas production region ID	}	defines unique facility
19	2. Company ID		

B. Production

- 19
1. Quantity (M)
 2. Quantity (M) by well type (gas well or oil well)
 3. Wellhead price (M)
 4. Daily production capacity
 5. Short-term production projections (M)

C. Output

1. Quantity (M)
2. Quantity (M) by destination (processing plant)
3. Quantity (M) by destination by route
4. Quantity (M) by purchasing pipeline company
5. Price (M) (charged by producing facility) by destination
6. Price (M) (charged by producing facility) by purchasing pipeline company
7. Transportation links available (gathering lines).
8. Short-term shipment projections (M) by purchasing T&D facility

*Data collected annually

Notes: (M) monthly totals, historical data for 5 years, projected data for 1 year.
(MS) end-of-month snapshots, 5-year historical data.

II. Gas Processing Plant*

A. Characteristics

- 12 1. Location--defines unique facility
- 12 2. Controlling company ID
- 3. Capacity (thru-put) per unit time

B. Input

- 12 1. Quantity (M)
- 2. Quantity (M) by source
- 3. Quantity (M) by source by route
- 4. Delivered price (M) by source
- 5. Transportation links available
- 6. Short-term receipt projections (M) by source

C. Storage of natural gas liquids (NGL)

- 1. Quantity (MS) by type
- 2. Capacity by group

D. Output

- 12 1. Quantity (M) by type
- 12 2. Quantity (M) by type by destination (T&D facility, refinery, bulk terminal) [destinations at the national level only]
- 3. Quantity (M) by type by destination by route (primary alternative)
- 12 4. Price (M) by type by destination [for NGL only, no destination information]
- 5. Transportation links available
- 6. Short-term shipment projections (M) by type by destination

*Data collected monthly.

III. LNG Terminal*

A. Characteristics

- 7 1. Location--defines unique facility
- 2. Controlling company ID

B. Input

- 7 1. Quantity (M) by type (LNG, natural gas)
- 7 2. Quantity (M) by type by source, (e.g., foreign country facility)
- 7 3. Quantity (M) by type by source by route [by mode of transport only]
- 4. Delivered price (M) by type by source
- 5. Transportation links available
- 6. Short-term receipt projections (M) by type by source

C. Storage

- 1. Quantity (MS) by type in storage
- 2. Capacity by group
- 3. Sendout capacity by group

D. Output

- 1. Quantity (M) by type
- 2. Quantity (M) by type by destination (e.g., T&D facility)
- 3. Quantity (M) by type by destination by route
- 4. Price (M) by type by destination
- 5. Transportation links available
- 6. Short-term shipment projections (M) by type by destination

*Importing and exporting LNG terminals are accounted for in this structure.

Importing terminal: Import and store LNG, convert LNG to natural gas, and send out natural gas via pipeline

Exporting terminal: Receive natural gas from producing facility, convert natural gas to LNG and store, and export LNG via tanker.

Data collected weekly.

IV. Underground Storage

A. Characteristics

1. Location--defines unique facility
2. Controlling company ID
3. Maximum drawdown rate as a function of gas in storage

B. Inputs

1. Quantity (M)
2. Quantity (M) by source
3. Quantity (M) by source by route
4. Quantity (M) by owning company ID (T&D facility)
5. Transportation links available

C. Storage

1. Quantity of working gas (MS)
2. Quantity of working gas (MS) by owning company ID
3. Price (M) charged for storage
4. Price (M) charged for storage by owning company ID
5. Cushion gas (ms)
6. Total capacity

D. Outputs

1. Quantity (M)
2. Quantity (M) by destination
3. Quantity (M) by destination by route
4. Quantity (M) by owning company ID
5. Transportation links available

V. Supplemental Fuel Storage Facility

A. Characteristics

1. Location	}	defines unique facility
2. Storage type (LNG, propane, SNG)*		
3. Controlling company ID		

B. Inputs

1. Quantity (M) by type
2. Quantity (M) by type by source (T&D facility, refinery, bulk terminal)
3. Quantity (M) by type by source by route
4. Delivered price (M) by type by source
5. Transportation links available

C. Storage

1. Quantity (MS) by type
2. Capacity by group
3. Maximum drawdown rate by group

D. Output

1. Quantity (M) by type
2. Quantity (M) by type by destination (T&D facility)
3. Quantity (M) by type by destination by route
4. Price (M) by type by destination
5. Transportation links available

*Synthetic natural gas (SNG) is produced on site from naphtha.

VI. Transmission and Distribution (T&D) Facility*

A. Characteristics

- 11,13 1. Company ID--defines unique facility
- 11,13 2. Nature of operation (interstate or intrastate)
- 11,13 3. States served

B. Inputs

- 11,13 1. Quantity (M)
- 11,13 2. Quantity (M) by source (processing plant, T&D facility, storage facility, foreign country, or LNG terminal) [no source data on processing plants, supplemental fuel storage]
- 3. Quantity (M) by source by route
- 4. Quantity (M) by selling production facility [total quantity purchased from producers only]
- 5. Delivered price (M) by source
- 6. Delivered price (M) by selling production facility
- 7. Transportation links available
- 8. Short-term projections (M) for item numbers 1, 2, 3, and 4

C. Storage

- 1. Quantity (MS) by type (stored in other facilities)

D. Output

- 1. Quantity (M)
- 11,13 2. Quantity (M) delivered to end-use customers
- 11,13 3. Quantity (M) by destination (T&D facility, storage facility, foreign country, or demand facility) [destination data for demand facilities only]
- 4. Quantity (M) by destination by route
- 11,13 5. Quantity (M) delivered to end-use customers by type of service (firm or interruptible)
- 11,13 6. Quantity (M) of gas curtailments by demand facility
- 11,13 7. Quantity (M) of gas curtailments by type of service

- 11 8. Quantity (M) of alternate fuels used by alternate fuel type (e.g.,
 No. 2 fuel oil, propane, bituminous coal) for all end-use customers
- 9. Existing capability (% gas displaced) for switching to alternate
 fuels by alternate fuel for all end-use customers
- 10. Delivered price (M) by destination
- 11. Delivered price (M) to end-use customers by type of service
- 11,13 12. Short-term projections (M) for item numbers 1 through 7

*System 11 - monthly data collected annually.

System 13 - data collected monthly during heating season only.

EEMIS NATURAL GAS SECTOR STRUCTURE
State Level

I. Natural Gas Production*

A. Characteristics

- 10 1. State or Region ID or national--defines unique facility
- 2. List of major producing company ID's

B. Production

- 10 1. Quantity (M)
- 10 2. Quantity (M) by well type (gas well or oil well)
- 10 3. Wellhead price (M)
- 4. Daily production capacity
- 5. Short-term production projections (M)

C. Output

- 1. Quantity (M)
- 2. Quantity (M) by destination (state/regional/national processing plant)
- 3. Quantity (M) by destination by route
- 4. Quantity (M) by purchasing pipeline company
- 5. Price (M) (charged by producing facility) by destination
- 6. Price (M) (charged by producing facility) by purchasing pipeline company
- 7. Transportation links available
- 8. Short-term shipment projections (M) by purchasing T&D facility

(M) monthly totals, historical data for 5 years, projected data for 1 year.
(MS) end-of-month snapshots, 5-year historical data.

*Data collected annually.

EEMIS NATURAL GAS SECTOR STRUCTURE
National Level

IV. Underground Storage**

A. Characteristics

- 9 1. State or region ID or national--defines unique facility
2. Maximum drawdown rate as a function of gas in storage

B. Input

- 9 1. Quantity (M)
2. Quantity (M) by source
3. Quantity (M) by source by route
4. Quantity (M) by owning state/regional/national T&D facility ID*
5. Transportation links available

C. Storage

- 9 1. Quantity of working gas (MS)
2. Quantity of working gas (MS) by owning state/regional/national T&D facility ID*
3. Price (M) charged for storage
4. Price (M) charged for storage by owning company ID
5. Cushion gas (MS)
- 9 6. Total capacity

D. Outputs

- 9 1. Quantity (M)
2. Quantity (M) by destination
3. Quantity (M) by destination by route
4. Quantity (M) by state/regional/national T&D facility ID*
5. Transportation links available

*Refer to "Transmission and Distribution Facility" footnote for explanation of owning T&D facility ID at the state, regional, and national levels.

**Data collected biweekly during heating season and monthly other times

EEMIS DEMAND SECTOR STRUCTURE
Facility Level

I. Demand Facility*

A. Characteristics

11,13,14 1. State ID

11,13,14	2.	Demand sector (residential, commercial, industrial, transportation, electric utility, residential/commercial, military)	}	defines unique facility [14-includes only transportation, electric utility, and all sectors combined]
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B. Input

11,13,14 1. Quantity (M) by fuel type (e.g., natural gas, No. 2 fuel oil, bituminous coal)

11,13 2. Quantity (M) by fuel type, by source

3. Quantity (M) by fuel type by source by route

13 4. Quantity (M) of natural gas by source by type of service (firm or interruptible)

11,13 5. Quantity (M) of gas curtailments

13 6. Quantity (M) of gas curtailment by type of service

11 7. Quantity (M) of alternate fuel usage by alternate fuel type by primary fuel type replaced

8. Price (M) by fuel type by source

9. Price (M) for natural gas by source by type of service

10. Transportation links available

11,13,14 11. Short-term projections (M) for item numbers 1 thru 6 [14-only contains projections for item 1]

12. Existing capability (% fuel displaced) for switching by primary fuel types by each alternate fuel type

Note: For the interim system the facility level demand facility is at the state level of aggregation.

*System 11 - monthly data collected annually.

System 13 - monthly data collected during the heating season only.

II. Large End-Use Consumers*

A. Characteristics

- 2,11,15 1. Location--defines unique facility
- 2,11,15 2. Controlling company ID
- 11,15 3. Demand sector (commercial, transportation, industrial, electric utility, military) [15-electric utility only]
- 11 4. List of FERC priorities with associated percentages of gas usage
- 11 5. List of 2-digit SIC codes with associated percentages of total fuel usage

B. Input

- 1. Quantity (M) for all fuel sectors
- 11,15 2. Quantity (M) by fuel type (e.g., natural gas, No. 2 fuel oil, bituminous coal)
- 2,11 3. Quantity (M) by fuel type by source [2-only includes foreign crude oil and foreign unfinished oils]
- 11 4. Quantity (M) of natural gas by type of service (firm or interruptible)
- 5. Quantity (M) by fuel type by demand category (space heating and miscellaneous thermal, process steam, direct heat, or petrochemical feedstock)
- 2 6. Quantity (M) by fuel type by source by route [only includes foreign crude oil and foreign unfinished oils]
- 11 7. Quantity (M) of gas curtailments by type of service
- 11 8. Quantity (M) of alternate fuel usage by alternate fuel type by primary fuel type replaced
- 9. Delivered price (M) by fuel type by source
- 10. Delivered price (M) of natural gas by source by type of service
- 11. Transportation links available
- 11 12. Short-term projections (M) for item numbers 1 thru 8
- 13. Existing capability (% fuel displaced) for switching to alternate fuel types for each primary fuel type

*System 11 - monthly data collected annually.

C. Storage

1. Quantity (MS) by fuel type
2. Capacity by group

IMPORT/EXPORT SECTOR STRUCTURE
National Level

I. Foreign Country

A. Characteristics

- 2,6*, 1. Country ID--defines unique facility [6*-country groups are specified
7*,16 for oil products, countries are specified for crude oil]

B. Input

1. Quantity (M) by type
2. Quantity (M) by type by source (e.g., State/Regional/National production facility, bulk terminal, T&D facility)
3. Quantity (M) by type by source by route
4. Price (M) by type by source
5. Transportation links available
6. Short-term projections (M) for item numbers 1 thru 2
7. Quantity (MS) in transit by type by source by route

C. Output

- 2,6*,7*, 1. Quantity (M) by type [2-oil products only; 6*-selected oil products;
16 7*-crude oil, natural gas and LNG only; 16-crude oil only]
- 2,6* 2. Quantity (M) by type by destination (e.g., State/Regional/National refinery, bulk terminal, T&D facility) [2-oil products only, destination is transportation junction facility; 6*-crude oil destination is PAD district, no destination for oil products]
- 7* 3. Quantity (M) by type by destination by route [7*-destination is transportation junction facility]
4. Price (M) by type by destination
 5. Transportation links available
 6. Short-term projection (M) for item numbers 1 thru 2.
 7. Quantity (MS) in transit by type by destination by route

*Note - Systems 6 and 7 are weekly systems.

EEMIS TRANSPORTATION NETWORK STRUCTURE
Facility Level

I. Transportation Links

A. Characteristics

1. Country ID
2. Input facility ID (junction nodes, refineries, bulk storage, etc.)
- 1,2 3. Output facility ID
4. Mode of transportation
5. Length
6. Lag time
- 1,2 7. Link type (megalink or detailed) [megalinks]
8. Energy sector or category

B. Transportation of fuel

1. Capacity
2. Quantity (M) by type
3. Transportation cost (M) by type

C. Fuel in transit

1. Quantity (MS) by type

II. Transportation Junction Facility

A. Characteristics

- 2,7,16 1. Location
2. Energy sector category
3. Company ID

B. Input

1. Transportation links available

C. Output

1. Transportation links available

EEMIS TRANSPORTATION NETWORK STRUCTURE
State Level

I. Transportation Links

A. Characteristics

8*	1. Input State/Regional/National facility ID	}	[input and output states only, not facilities]
8*	2. Output State/Regional/National facility ID		
8*	3. Mode of transportation [pipeline only]		
	4. Energy sector and category		

B. Transportation of fuel

8*	1. Quantity (M) by type, group, category, sector [oil products only]
	2. Transportation cost (M) by type

*Note - System 8 is currently a voluntary system.

EEMIS TRANSPORTATION NETWORK STRUCTURE
Regional Level

I. Transportation Links

A. Characteristics

- 1,6* 1. Input State/Regional/National facility ID
- 1,6* 2. Output State/Regional/National facility ID
- 1,6* 3. Mode of transportation
- 4. Energy sector and category

B. Transportation of fuel

- 1 1. Quantity (M) by type
- 2. Transportation cost (M) by type

C. Fuel in transit

- 6* 1. Quantity (MS) by type

*Note - System 6 is a weekly system.

EEMIS TRANSPORTATION NETWORK STRUCTURE
National Level

I. Transportation Links

A. Characteristics

- 1 1. Input State/Regional/National facility ID
- 1 2. Output State/Regional/National facility ID
- 1 3. Mode of transportation
- 4. Energy sector and category

B. Transportation of fuel

- 1. Quantity (M) by type
- 2. Transportation cost (M) by type

C. Fuel in transit

- 1 1. Quantity (MS) by type